The Dissertation Committee for Joshua Douglas Bonzo
certifies that this is the approved version of the following dissertation:

Who is in Control?

Topic Modulation in Spontaneous L2 Writing

Interest, Confidence, Fluency, and Complexity

Committee:

_____
Zsuzsanna I. Abrams, Supervisor

_____
David P. Birdsong

_____
Elaine K. Horwitz

_____
Zena T. Moore

_____
Marilla D. Svinicki

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by

Joshua Douglas Bonzo, B.A.; M.A.

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Who is In Control?

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Supervisor: Zsuzsanna I. Abrams

The present study examined the differences manifest in the writings of third-semester German language learners when topic selection was modulated between student and instructor. Students enrolled in third-semester German (four intact classes taught by three different teachers) wrote in an in-class journal for 10 minutes each week for an eight week period. One half of the time, participants selected their own topics, the other half of the time, they were assigned a topic by their respective instructor. To account for order of treatment, two of the four groups were counterbalanced with the other two.

As an intermediate variable, participants were asked to indicate their level of interest in topics that they either selected or were assigned for each writing session. Additionally, participants indicated a general self-appraisal of the quality of each written

product (referred to as confidence in one's own writing). Each of these was indicated with a 6-point scale (1=lowest interest/evaluation, 6=highest interest/evaluation).

Each written product was textually analyzed and results were categorized into a general fluency index and an overall grammatical complexity score. The results of these indices were correlated with the intervening variables of interest level and self-appraisal of written work, and an analysis of variance (ANOVA) was performed to see if topic control modulation influenced any dependent (fluency/complexity or intermediate (interest/self-appraisal) variable.

ANOVA results indicate that topic control did influence participant's written fluency but not grammatical complexity. Participants' overall level of fluency was significantly higher when they selected their own topics.

Interest in a given topic showed no significant correlation with complexity in writing, except in the only class taught by a native speaker of German. There was a correlation between participants' confidence in written products and writings which were elicited from assigned topics (i.e., participants indicated higher levels of confidence in their writing when topics were assigned). The only exception to this finding came from one group which showed correlations with both assigned and self-selected topics.

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Chapter One
Introduction

In the foreign language classroom, when a language learner puts his pen to a piece of paper and begins to write in the target language as part of a writing assignment, the most likely goal of that learner is to produce a grammatically accurate product. The least likely thought might be, "I wonder how fluent and/or grammatically complex my writing is going to be today." Ironically, as the language teacher picks up that piece of writing and reads, the same thought is also very unlikely to occur. What is central in the minds of both is the question of correctness. Both forget that there are other equally-important elements to foreign language writing than error-free text, such as fluency and complexity in writing (Wolfe-Quintero, Inagaki, & Kim, 1998). Learners often 'hold back' and avoid taking chances with less-familiar forms for fear of diminished accuracy, thus producing less overall and less complex writing (Homstad & Thorson, 2000).

This focus on accuracy in forms is such an important aspect of language teaching and the language learning process (particularly in writing), that too often student and teacher alike forget the necessary place of errors. Corder (1967) pointed out the role of errors in learners' development toward successful and complete acquisition of their own respective first languages (L1's). Furthermore, he argued, errors made during the second

language (L2)[1] learning process often resemble those made by emergent L1 learners and are frequently the result of hypothesis-testing in the target language (TL). When looking at writings produced by learners in a foreign language, errors can often show more about development than error-free text can. Selinker (1972) argued that between the learner's L1 and target language exists a bridge where learners begin using the language, often in ways other than a native speaker would, in an effort to 'try out' (hypothesize about) the language and its nuances.

This brings me back to my opening statement: Language learners who hope to test hypotheses about a target language through writing invariably face the knowledge that what they write will be seen and evaluated by the language teacher. As a result, hypothesis testing which might lead to potentially more free, more complex writing becomes victim to minimalism – learners producing only what is required with as few mistakes as possible (Perl, 1979; Rorschach, 1986; Sandler, 1987). Homstad & Thorson (2000) commented:

> Because students often do not see these assignments as intended to create real meaning, but as a means to "test" whether they know the vocabulary or not, students will often write as little as possible to avoid making any errors. The result is that students end up using only a fraction of the vocabulary, functions, and phrases available to them as part of their FL curriculum, and the partial or disconnected sentences they do produce are often meaningless." (p. 144)

[1] Within this study, no distinction is made between a second language (a language that is one spoken natively in the area, such that the language learner is regularly exposed to it outside of the classroom) and a foreign language (one that the learner is likely to encounter in the classroom only).

Pedagogical Writing

Corder (1967) argued in favor of foreign language writing, even if only ideas were produced without exposition. He did not, unfortunately, specify whether or not all kinds of writing in a foreign language had equal benefit. One year previous, Kaplan (1966) questioned all beliefs of foreign language writing practiced at the time by arguing that L2 writing was more than L1-influenced. Since that time, L2 writing instruction and research has come to conclude that the most beneficial forms of writing always occur in *meaningful* contexts (Brown, 1994; Hadley, 2001), meaning those methods/contexts which more fully incorporate the new language or language forms with already existing knowledge, thus making integration of the new more automatic and longer-enduring. Brown argued that in addition to this type of use, that *authentic* language use (using the language in those ways that a native speaker would) was requisite for proper internalization of the language. In other words, language learners are benefited most through production of language that incorporates the learner's actual day-to-day routine, needs, or practices.

Unfortunately, much of foreign language writing is typically a series of exercises designed for learning and practice of discrete, de-contextualized target forms only. Swaffar, Arens, and Byrnes (1991) stated that when language students write in the foreign language classroom, most writing opportunities they encounter within introductory language textbooks are on the periphery of the language experience, requiring them to manipulate disjointed, discrete items of a language, but not to use the language as a connected framework for meaning conveyance (p. 30). They state:

> In high school and college, students listen, read, and write for purposes other than learning a foreign language. Adults read and listen to learn about new information and ideas… Yet in the United States, *the goal of instruction in foreign languages has been to learn the language rather than to use the language to learn* (p. 29).

For writing to be 'meaningful,' it has been argued that content-focused not form-focused writing yields more learner-interest and deeper, richer text (Jones, 1982; Smith, 1994). Way, Joiner & Seaman (2000) suggested that when arbitrary writing assignments are created for teacher evaluation purposes only, such writing "…becomes devoid of realistic context…" (p. 180). Indeed, it would seem a much sounder practice to have students write about what is most significant to them, allowing them to explore the language with a diminished threat of correction (Paris & Turner, 1994). According to Heilenman (1991), unfortunately, writing in the foreign language classroom, particularly at lower levels, does not allow for this as much. Content-focused writing, that kind of writing, she argues, which is used to "create meaning…has been most noticeable by its absence" (p. 276). The writing of compositions and essays in the L2 instead is used for practice of forms.

The Journal as a Writing Tool

In the introduction to Peyton's (1990) Students and teachers writing together: Perspectives on journal writing, Tamara Lucas and Donna Jurich suggest that journal writing can serve to fill both the *meaningful, content-focused writing* requirement (described above) as well as overcome the problem with learners producing only minimally for the sake of accuracy:

> [An issue], more narrowly focused on the individual writing classroom is how to engage students in writing that is meaningful and communicative. Journal writing, in which students write about themselves and about ideas and issues of concern to them, fulfills that goal by involving students in authentic communication with a reader who responds primarily to *what* they have communicated rather than *how* they have communicated (p. xi).

Many authors, such as Blanton (1987), Sternglass (1988), Fathman & Whalley (1990), and Peyton (1990) all suggest that writing in a journal has a 'freeing' effect on writers, allowing them to explore avenues of thought and degrees of writing left unexplored by traditional essay and similar academic writing. Vanett & Jurich (1990) observed:

> Whenever we have used journal writing in our classes, we have been struck not only by what the students write about but also by how well they put complex ideas and emotions into words. Yet some of the same students appear to ignore or abandon the skills they use in their journal writing when faced with academic assignments (p. 24).

I first heard of the idea of using journal in the foreign language classroom in my second year of teaching. I had always believed that students would write better when they chose to write about their own lives, and did so in a setting where they wouldn't feel penalized for practicing (experimenting) with the language. Over the years, though, I have frequently observed two different levels of grammatical complexity in writing from the same students, dependent on whether the writing took place in a journal or as part of a language test. When writing tests, students consistently wrote at a diminished level of grammatical complexity. This might explained as a "play it safe tactic"; students might only write what they know so as not to be penalized. These same students showed no such reticence in their journal entries. My observation is similar to that of Sandler

(1987), who observed: “When students know that their entries will be graded, they revert to using the simplistic constructions already learned in elementary French. By contrast, ungraded journals encourage the experimentation – and failure…” (p. 316).

Journals are typically graded on a participatory basis. Students who write in a journal receive global credit for writing. Correctness is de-emphasized, and both language and topical exploration are encouraged. Feedback to what students write can be grammatically focused, but more often, feedback occurs as supportive comments to content. Such is the case in the *dialogue journal* (Fulwiler, 1987).

Journal writing in its truest sense is writing that typically takes place without constraints to length of time or choice of topic; the entries written are usually intended for the author only. Semke (1984), however, sought to bring the practice of a journal into the classroom, and for purposes of research, applied a time-constraint to the journal. Although some of her variables confounded the study, the initial construct of her work is the basis for the present study.

Topic Control

In response to the call for movement away from forms and discrete (non-communicative) grammatical forms, language curricula and typical beginning language textbooks have taken a more language-in-context approach to the grammar. Contextualized topics are joined with new material for a more highly integrated learning experience. However, the notion of “old habits die hard” applies here as well. When writing is called for on the part of the language learner, teachers and textbooks usually control the criteria through which language learners will write. Foremost among these is

the topic of a given piece of language writing. Topics should be engaging, argues Kroll (1991), the kind that would stimulate learners possessed of different skills to write on a level most applicable to their varying abilities. Raimes (1983) said, "choosing topics should be the teacher's most responsible activity" (p. 266). However, this argument effects an *I, the teacher, know what's best for you, the learner* approach to writing. There are aspects of writing beyond target constructions, rhetorical forms that need practice, and points of grammar, that a teacher might not consider when selecting a topic for his students to write about. For example, what role does writer interest play in both what and how a writer writes? Fulwiler (1987) argued, "When people *care* about what they write and see connections to their own lives, they both learn and write better" (p. 6; Moffett, 1968). If this is true, then teachers need to be aware of more than the requirements of the curriculum and linguistic/grammatical goals of the text that is to be written; indeed, teachers must know what material, concepts, ideals, information, or motives will actively engage learners; and who better can inform the teacher of such material than the learners themselves. If learners know what material engages them, will they be able to write successfully if they are in control of said engaging material?

Perhaps one of the most daunting tasks to this study lies in both determining *how* writing in such a 'meaningful' context differs from 'less-meaningful' writings, and how to induce both kinds of writing. The most basic solution to this problem might be found in modulating control of topic selection; topics of a journal are usually self-selected. If journal topics become assigned by a teacher, even though the topics can be relatively similar (or even identical) to those of self-selected journal entries, the overall authenticity

of keeping the journal might be compromised. The pivotal question of this research, then, is whether or not the way students write changes when control over topic shifts between the student and the teacher. Typically, a person self-selects a topic for exposition or narration by himself when writing in a journal. Will students consequently write differently in a journal when the topic of the entry is assigned rather than self-selected? Assuming that teacher-assigned topics do, in fact, lower the overall degree of authenticity in journal writing, then this study might effectively compare Brown's (1994) and Hadley's (2001) claims of authenticity yielding greater gains through internalization. Among the criteria guiding this study is the underlying assumption that there is a strong relationship between the amount of interest a language learner has for a topic. Presumably, when given the opportunity to select one's own topic, a writer will select a topic for exposition that is of interest or for which the writer possesses strong emotion or a strong opinion (Larsen-Freeman & Strom, 1977; Polio & Glew, 1996). The assurance of such increased levels of interest in a topic is greatly diminished when selection of the topic is beyond the writer's control. To that end, this study will also consider how interest in topics changes when topic control shifts between student and teacher. If there are differences, will they manifest themselves grammatically (e.g., will the complexity of the syntax be more or less when students select their own topics than when they are assigned topics), in overall fluency and finally, will this control over topic change the way the writer perceives his or her quality of writing?

The data and results presented in this study can hopefully open a door to additional ways that writing might be impacted. For example, one might choose to look

at total units successfully created (or even attempted) across the differing forms of writing. Additionally, mean length of product for each might be considered. Observing such quantifiable differences is only one direction future studies might take. Other points of focus should include consideration of content and depth of topic as opposed to mechanics and complexity. Topic selection may vary between the opposing kinds of writing. There may also be observable differences in depth of treatment for a given topic. Writing on self-selected topics versus assigned ones may also different affective outcomes on students. Students may, for example, report higher levels of satisfaction, or perceive greater value toward their total language learning experience with one writing practice over the other. Finally, and perhaps most convincingly, there might be observable differences between how writing in both forms changes over time. If internalization is more likely when engaging in a more-meaningful, interesting task, and assuming that writing in a journal from topics which are selected by the student instead of assigned by the teacher comprises such a 'more meaningful, interesting task,' then will a student make greater gains over time when engaging in such a form as compared to a lesser-meaningful, less interesting form of writing?

Research Questions

To accomplish this research, third-semester German students were instructed to write in journals – half of the time, they selected their own topics, the other half of the study, topics were assigned to them. To offset the effects of time and order of procedure, the study was counter-balanced by design. To answer the question of how differences might be manifest, this study will focus on the following specific research questions:

1. Does topic-selection control (teacher-selected topics versus student-selected topics) influence a participant's expressed interest level in a topic or a participant's self-assessment of the quality of a piece of writing on the said topic (referred to as *confidence in a written product*)?

2. Does topic-selection control (teacher-selected topics versus student-selected topics) influence a participant's fluency in writing (as measured with a general fluency index) or a participant's grammatical complexity in writing (as measured with a general complexity score)?

3. Do interest level, confidence in a written product, or a combination of both influence participants' fluency and/or grammatical complexity?

4. Is there any correlation between any of the variables previously listed (interest, confidence in a piece of writing, fluency, or complexity) for each type of topic control modulation (self-selected and teacher-assigned)?

5. Does previous experience with keeping a journal (either in the L1 or another language) correlate with confidence in a piece of writing, writing fluency, or grammatical complexity?

6. Is there a correlation between a given participant's expressed goal orientation (mastery / performance / avoidance) and his or her performance relative to those variables previously listed (interest level, confidence in a piece of writing, fluency, or complexity)?

Conclusion

In language classrooms, students often write on topics selected and assigned by the teacher. Moreover, they write with the knowledge that their work will likely be graded. These two facts may, indeed, lead to differences in writing that wouldn't be present if a student selected her own topic. Often, as students write for a grade, they may not be writing to express ideas and convey knowledge, but to complete an assignment (Rorschach, 1986; Sandler, 1987; Reichelt, 2001). As a result, language writing can become diluted and void of rich, complex language. As language teachers, we need to be

aware of the potential discrepancy between these two different purposes in writing; and more importantly, we need to take steps to ensure that our students are writing as best as possible. A careful observation of students' fluency and grammatical complexity in writing (as well as future studies in topic development, discourse depth, and cohesion – all discussed in chapter 5) can assist in observing what kinds of tasks yield the best writing.

The place of the journal and the practice of timed writing as tools for language learning are still being defined in the foreign language classroom. If students are found to write differently in journals based on assigned versus self-selected topics, there may be a similar trend in other forms of foreign language writing as well.

Chapter Two
Review of Literature

This study seeks to address the results of modulating topic control in the timed journal entries of third semester German students. The study is guided by the research questions described in the previous chapter and outlined here:

- Topic Control: Does modulating topic control between the teacher and the student yield differences to students' products with respect to writing fluency and writing complexity?
- Interest/Confidence: Do the variables of *interest in topic,* and *confidence in a written product* (of a combination of the two) intervene to influence writing fluency or complexity, and are there any relationships among these various variables?
- Are there relationships among prior experience with the task type (writing in a journal) and *interest, confidence, fluency,* or *complexity* and/or a student's goal orientation (performance/mastery/avoidance) and those same variables?

This chapter will examine the body of existing L2 literature addressing these criteria and their associated phenomena.[1]

[1] As pointed out by Reichelt (2001), the vast majority of research performed under the title "foreign language writing" has been conducted with English as a second language (ESL) and that the findings drawn therefrom are not completely generalizable to foreign language writing. The present review attempts to incorporate that literature which seems most relevant to foreign language writing specifically or to features shared both by foreign and ESL writing.

The Factors Influencing Foreign Language Writing

As a language learner writes, what is written itself cannot be completely indicative of the writer's total language proficiency. Indeed, there are many external influences which influence production; most salient to this study are overall L1 writing competence and its many subcomponents, such as planning, ability to develop ideas coherently as well as cohesively, recursivity in writing, and revising and editing, as well as the affective influence of interest in the topic to be written, orientation to the task (be it mastery, performance, or avoidance-orientation), and finally a given topic itself.

Transfer of Skills, Strategies, and the Role of the L1

Exactly what happens when students write in a foreign language has been a debate as early as the 1960's. In a seminal article, Kaplan (1966) argued that L2 learners bring more to the writing plan than an L1 grammar; in addition to evidence of L1 language patterns in their writing, Kaplan showed that writers from other cultures transfer rhetorical styles to their L2 texts as well. Such debates were spurred even further by the groundbreaking works of Perl (1978 & 1979), and Flower & Hayes (1977 & 1981) who were among the first to tackle the question of just what writers do when they write. From her studies in 1978 and 1979, Perl concluded that the strategies and processes of unskilled writers were consistently recursive, the writers returning to prior stages of composition (brainstorming, revising, editing) throughout the process. Zamel (1983) would conclude that recursivity in writing was a practice more often employed by her skilled writers than her lesser-skilled ones.

Krapels' (1990) meta-analysis looked beyond the skilled/unskilled continuum to how writing skill in an L1 influenced writings in the L2. She determined that the composing processes of "skilled" and "unskilled" L2 writers are similar to those of "skilled" and "unskilled" L1 writers. She concluded that L2 competence is not the main underpinning for successful L2 writing, since L2 writers challenges and successes relate to composing rather than to their language proficiency (Jones & Tetroe, 1987). In her study, Zamel (1983) had shown that both skilled and unskilled L1 writers composed similarly in both languages – her skilled L2 writers planned (albeit, minimally) before composing, they revised and rehearsed, making the actual process quite recursive; all of these strategies for writing were also observed in the writers' L1's.

In a similar study of how less-skilled L2 writers go through the writing process, Raimes (1985) verified that planning was indeed minimal. However, unlike unskilled L1 writers, her less-skilled L2 writers were not as concerned with errors, and did not edit until the composition process was nearly complete. It seemed that her L2 writers were more interested with 'getting the ideas down' first then going back later to revise them for grammar. Silva (1993) further specified by stating that the most commonly cited findings in L2 process research are: that planning in the L2 is usually less careful and less in overall duration when compared to the L1; that L2 writing is not as fluent of a process as writing in the L1; like the L1 revising and rehearsing occurs throughout the process; and that unlike with the L1, writers edit throughout the L2 writing process. Cumming (1987, as cited in Krapels, 1990) reported that his subjects (adult ESL students with Canadian French as their L1) all used the L1 for content generation across writing genres:

personal, expository, and academic. The non-expert writers only used the L1 for idea generation, while the expert writers used the L1 for this as well as checking style (such as diction). Later, Cumming (1989) showed that final products of skilled writers distinguish themselves from the products of non-skilled writers in overall coherence (whereas he observed little difference in grammatical or syntactic accuracy between skilled and unskilled writers' products).

Not all successful L1 writing skills lead to successful target language writing however. Woodall (2002), for example, in a comparison of compositions of ESL learners of differing L1's, found that those students whose L1 was a 'cognate language' with English appeared to write with greater levels of proficiency than did their 'non-cognate' L1 peers. This result was found to be the case regardless of content knowledge. Moreover, he found that as L2 proficiency increased (he did not control for writing proficiency), the less likely his L2 writers were to resort to the L1 for support. Though there was a general trend for this latter finding, Woodall was unable to determine exactly the level of L2 competence necessary to cause the writers' drop in L1 reliance.

Since Kaplan's early arguments, researchers have come to view L2 writing as a series of independent processes and strategies which are drawn from the writing strategies first learned and developed in the L1, which work together with the L2 to create text. Flower and Hayes (1977, 1981) argued that writing follows from a logical set of cognitive processes which, though initially somewhat random, become organized during the actual process of composing (composing being not merely writing ideas, but planning, writing, revising and editing).

Complexity / Difficulty of Task

Woodall made one final conclusion: From observation of his participants' think-aloud protocols, he found that task difficulty was a predictor of duration but not frequency of L1 recourse (meaning how often and how much time a writer would spend planning, revising, or editing, conducted in the L1); that is to say, the more difficult of two L2 writing tasks (an essay as compared to a letter to a friend) caused writers to spend more time planning or reviewing the task or similar composition strategies in their respective L1's than in the target language. This finding seems to fly in the face of an observations made by Wang & Wen (2002), who found that Chinese writers spent more time planning in their L1 with a less difficult task of narration than they did with the more difficult task of argumentation. However, they suggested, that this L1 recourse was more reserved for managing writing processes and generating and organizing ideas (but not text). These writers were more likely to rely on L2 when undertaking task-examining and text-generating activities.

Woodall further focused his study by looking at the relative distance that exists between a language learner's L1 and the target language (i.e., whether or the language is a cognate language with English). He determined that there is indeed an interaction between task difficulty and the relative distance between a language learner's L1 and L2: For language learners whose L1 was a cognate language with the L2, longer periods of L1 use were related to higher quality L2 texts; for students whose L1 was not a cognate language with the L1, lower quality texts resulted from extended L1 use.

Jones & Tetroe (1987) found that language planning was almost always managed by the writer's L1, but in addition to this, they also showed that the amount of L1 recourse varied due to the amount of structure that was provided with a writing task as well as the level of familiarity that a writer had with the task. Seeking to arrive at the same conclusion, Smith (1994) was only able to show that task schema (i.e., familiarity) was an indicator of writing success. Those who had written a resume in the L1 had greater success with the same task in the L2 than did their peers who had never written one at all.

Based on their findings, Jones and Tetroe suggested that the amount of transfer of skill involved in L2 production seems to be influenced by the production tasks themselves. TL use tends to be less hampered when the demands of a task are lower (Qi, 1998). They reached this conclusion after observing their ESL students think-aloud plans for writing; when presented with more structured tasks (a sentence with an already-completed conclusion), students used their TL more frequently than they did with a more open-ended (as a result demanding) task (writing an essay from a prompt). Conversely, when the demands of the task are too high, the learner may have no choice to but resort of the L1 for recourse. This is consistent with Faerch & Kasper's (1989) model that transfer can be a strategy for easing production-processing burden. Transfer, they argue, occurs either consciously or sub-consciously. In either form, transfer is the direct result from production planning and overall production in the TL. It is merely the circumstances wherein the planning/production occurs that determine how the L1 influences the L2. They suggest three forms of transfer:

1. Strategic transfer, the conscious reference of a learner to his L1 for needed forms/structures not available to him in the TL

2. Automatic transfer, which occurs when there is a 'competition' between an available TL form and a more highly regularized/automatized L1 form. Typically, the L1 form, due to its automatic nature "wins."

3. Subsidiary transfer, occurs when the production plan is procedurally or cognitively overwhelmed by the demands of the performance (this often happens when a learner is asked to spontaneously produce in the TL). The learner's need to perform outstrips his ability to perform, and he thus reaches the language most available to him (the L1) to lighten the processing/cognitive burden.

Task complexity is not the only variable associated with transfer. As previously mentioned, Jones &Tetroe (1987) found that L1 reliance varied both with the level of structure accompanying a task as well as the level of familiarity with a task that a writer possessed. Familiarity with task was a guiding research question to Skehan and Foster's (1999a) research. They found that when recounting events orally, students performed best (most accurately and most complexly) when recounting events for which they had working knowledge. Likewise, it was the interaction of task familiarity, existing content knowledge and schema as it applied to L2 writing that led Friedlander (1990) to test how writing is affected by the language in which content knowledge is first gained. His finding was two-fold: First, he showed that writers who use their L1 writing strategies generally created the most solid compositions; second, he found that the compositions were the most successful when the composition was, indeed, written in the same language as that through which the content knowledge was first gained.

Focusing on Process or Product?

The majority of literature cited to this point has presented the writing of L2 learners as a series or process of steps contributing to the whole production. While many advocate the encouragement of learners using writing as a tool for language learning, basing the pedagogy on the processes of writing previously mentioned, there are battle lines drawn: Flower and Hayes (1977) were among the first to look at writing as a process. Setting out to determine the motivations and processes that "good writers" (p. 452) undergo before, during, and after writing, they concluded that the total writing process could be approached as a type of 'problem-solving' strategy, a complex of processes working (sometimes overlapping) toward a common goal.

After her observations of skilled and unskilled writers, Zamel (1983) concluded that the major difference between skilled and unskilled writers was not to be found in recursivity, but rather in editing. It was her skilled writers who chose to edit as the final stage of writing (unlike the unskilled writers, who edited all along the way). This finding was similarly argued by Perl (1979), who suggested that idea development can be seriously inhibited by concern for correct form. Prior to her 1983 finding – that unskilled writers focused on forms rather than on entire arguments – Zamel (1982) had suggested, that L1-process oriented writing training might be all that unskilled writers need to become better L2 writers.

Zamel's suggestion wasn't universally embraced, however. Horowitz (1986a, 1986b, 1986c), for example, argued that traditional academic writing is intended to convey a meaning, that is to say, to inform or teach; true academic writing, he states,

always focuses on the soundness of content and a final product. He cites the need to be able to spontaneously produce writing for the purpose of informing an audience (a task such as the test essay, for example). If language writers intend one day to write for audiences, they will require the practices employed by academic writing (e.g., writing to inform, persuade, or elaborate). He argued that language learners who are, therefore, taught to focus on writing processes are not being correctly prepared for academic writing, claiming that the idea of recursive drafting gives an L2 writer a false idea about his own writing ability. Thus, it is fallacious to have L2 learners only go through processing tasks to generate text, when the only academic courses that do anything similar are composition and literature (where drafting and expression are the rule). Taking such courses, he is quick to observe, are not the main emphases of most language learners.

There is room, however, for both sides of the continuum. Prior to Zamel's 1982 and 1983 works, Taylor (1981) advocated the importance of letting ESL students first come to term with meaning and then undergo a process of writing which would allow them to discover and create the form that best relays that meaning. He did admit (similar to Horowitz's argument) that most students learning English as a second language are required to employ more creative-type writing forms, but they are also required to write more academically later on. His suggestion was that the former be a training step to the latter.

As I have summarized in this section, there has been work done showing that processes underlying writing are L1 influenced, not only with regard to production but

also to planning and procedure. Furthermore, both the complexity of a task as well as the amount of content knowledge a language learner possesses influence how successful a writer will convey an intended message. The latter of these is directly relevant to the goals of the present study. Among the research questions that have guided this study is whether writers' complexity and fluency in writing are influenced by topics which they select for themselves are assigned by someone else. Each type of control over topic presents the writer with a different opportunity or challenge: When a writer selects her own topic, she presumably does so (as will be shown later in this chapter) because she possesses either necessary skills and background knowledge to address her selected topic successfully, she has a higher level of interest vested that selected topic, or a combination of the two. When this same writer is assigned a topic, there is introduced the potential hazard that the writer may have lesser degrees of skill or levels of background knowledge to address the assigned topic successfully, or she may have lesser levels of interest in that assigned topic, or both. This idea of interest in a topic and background knowledge influencing how a participant performs is addressed in the next section.

Affective Factors

Confidence, risk-taking, motivation and orientation. One of the many challenges a language teacher faces is the seeming lack of willingness students often display when required to produce in the target language. As students write in a respective foreign language, what tendencies are there for "attempting" unknown or lesser familiar grammatical structures in those languages, what triggers those writers to take risks and 'try the language out' (and what holds them back)?

With his well-known *Social Cognitive Theory*, Bandura (1986) suggested that self-efficacy mediates performance, that is to say, it is a student's own confidence in his ability which will help determine what he will do with the knowledge or skill(s) he possesses. This idea of confidence in one's own ability led Shell, Murphy, and Bruning (1989) to assess the confidence of undergraduate students to perform certain writing skills in their L1. They reported a high (significant) correlation between these students expressed confidence in their own ability to write (self-efficacy) and their holistic performance on a timed essay (r=.60).

Pajares & Valiante (1997) looked at a younger target audience to assess self-efficacy and writing. From their 5th grade participants, they found that expressed levels of confidence in students' own writing abilities accurately predicted their overall writing performance on a 30-minute L1 writing activity. Prior to this, Pajares & Johnson (1996), looking at student performance, observed that, "… self-efficacy should continue to predict related academic performances when the effects of anxiety are controlled, whereas the effect of anxiety should diminish when confidence judgments are controlled." (p. 165). They also found that students' judgments of their own self-efficacy "…mediate the effect of other influences [on performance]" (p. 163). Among those influences are the choices students might make about how much to write, how complexly to write, how much attention to give to form and/or to content, the amount of time they might expend on a project, or the degree of depth to which to develop a topic/theme.

One additional influence on performance in a foreign language writing context might very well be risk-taking when writing. If L2 performance is linked to L1 writing

proficiency as authors cited in this chapter have suggested, and if L1 performance is, even if only in part, driven by the level of confidence a writer has in his ability to write, then there is a relationship between confidence and L2 risk taking

Unfortunately, very few studies exist which speak to the topic of grammatical risk-taking (a feature highly-salient to this study) in preliminary writing activities. This section will address those affective variables found to be influential to writing in general and from the standpoint of theory and as it applies to goals, planning, and revision of writing.

As mentioned earlier, familiarity with a topic or previous background knowledge was found by Jones & Tetroe (1987), Smith (1994), Friedlander (1990), and Skehan and Foster (1999a) to be central factor to successful L2 writing and overall quality. Polio and Glew (1996) observed that such was the main reason why students chose the prompts they did on a timed essay test. These students in interviews admitted to selecting topics for which they felt they possessed the most knowledge. Sternglass (1980) observed that inexperienced writers tended not to take risks in composing and revising (such as the use, development, and revision of new concepts and ideas), but experienced writers did. Moreover, whenever her students perceived any writing assignment as 'meaningless,' the "commitment to [a] task drew on very low-level cognitive operations. But when the goals were stimulating, processes and responses were mobilized, leading to more reflective thinking" (p. 7). Flower and Hayes (1977) reported that participants in their think-aloud protocol demonstrated that the writing process worked much like any other problem-solving strategy as a series of integrated processes working in tandem (not as

disjointed steps). Commenting on that work, Sternglass suggested that the protocol construct had a major flaw; she suggested that risk-taking was, in fact, "an element of the writing process that the writer [would be] unlikely to mention in a protocol report because it probably does not seem to fit with the exigencies of having to produce writing on demand…" (p. 10).

Beginning in the 1950's, Gardner began the formation of his well-known his socio-educational model of language acquisition, which suggested that language learners have different levels of 'integrated' motivation for learning and producing a language (Ames & Archer, 1988; Paris & Turner, 1994). Gardner (2001) suggested that the three criteria are required for true motivation towards successful learning are 1, the expending of energy to learn ("effort"), 2, the desire to achieve ("desire"), and 3, the *enjoyment of the task* ("affect"; pp 12-13).

Though most of his Gardner's is related to acquisition of learning (a long-term process), his model does suggest that short-term and immediate differences will be apparent in learners who are more motivated. Gardner (2001), for example, lists twelve expectations of full motivation for language acquisition, two of which (those being most relevant to my study) are listed here:

- Expectation 1: "Differences in attitudes and motivation will be related to differences in achievement in the second language" (p. 14; Gardner & Lambert, 1959).
- Expectation 5: "Differences in attitudes and motivation will account for differences in activity in the language classroom" (p. 17).

Risk-taking (or lack thereof) might also be seen as an outward expression of the goal-orientation of students (traditionally, *mastery* and *performance* orientation; Ames & Archer, 1988; Ames & Ames, 1991; Elliot & Church, 1997). Mastery orientation, for example, values successful attainment of a goal. It is intrinsically based, and places a main focus on learning. Ames & Archer (1988) suggested that learners who are mastery oriented are more likely to view external correction and production difficulty as a natural part of the learning process, and are more likely to attempt more challenging tasks. Performance goal orientation, on the other hand, reflects a valuing of positive evaluation and the appearance of competence. Motivation for production does remain high as long as the potential for success exists. It drives a student to accomplishing tasks for the purpose of external acceptance, praise, recognition or evaluation. As a result, however, difficult topics and tasks might be avoided to prevent negative feedback/correction. And when negative evaluation does occur, it tends to be debilitative to motivation.

Interest in a task. Paris & Turner (1994) argued that motivation is not a static phenomenon, but can be encouraged and fostered. For this to be accomplished, however, certain requirements must be met. They suggest that learners must be allowed some control over the tasks they perform. The tasks must be challenging but attainable. Finally, such tasks must allow for a certain amount of collaboration and interaction with their peers. Through each of these, they point out that true motivation is also directly related with the amount of interest a learner has for that task:

> Interest in a topic involves both feeling-related characteristic, such as enjoyment and involvement, and value-related characteristics, such as attributing significance to an activity… When students attribute positive values and feeling to particular courses of action, they are likely to…pursue them vigorously (p. 223).

Gardner (2001) suggested that enjoyment of a task is prerequisite for true motivation), one question which still remains is whether the *quality/quantity* of production also increases when interest level in a task is high. Skehan (1989) argued this as well with the first of his four motivational hypotheses – that there is an inherent interest (differing degrees for each learner) that a language learner has for specific language learning tasks.

Larsen-Freeman & Strom (1977) considered degree of interest to be of sufficient weight as an influence on overall writing quality, that they included it in their study: "The content of the composition was also evaluated as to relevance to the topic, degree of interest and sophistication of treatment" (p. 126). They furthermore suggested that longer essays might be attributed to a greater willingness on the participants' part to be more expressive. Unfortunately, they did not report any findings from interest as a variable. Indeed, interest that a writer has in a task or topic as a variable affecting quality of L2 writing is an often overlooked factor. Casanave (1994) offers the rationale for the lack of research into this interaction with the following:

> …it is difficult to monitor in concrete ways how factors such as purpose for writing, assignment requirements, *interest and motivation in writing*, and day-to-day factors… interact to affect the quality of what students write" (p. 198, italics added).

Sternglass (1980) observed that as students perceived a writing assignment to be meaningless the "commitment to task drew on very low-level cognitive operations. On the other hand, "when the goals [were] energizing, processes and responses [were] mobilized, leading to more reflective thinking" (p. 7; Paris & Turner, 1994).

Polio and Glew (1996) found from their interviews of 26 students who had been asked to write in-class test-type essays that those students selected from among various prompts for the following reasons:

1. Perceived familiarity or background knowledge 22
2. Generality or specificity of a prompt 12
3. Perceived rhetorical structure elicited by a prompt 7
4. Interest level in topic 2
5. Knowledge of appropriate English [L2] vocabulary 2

(Note: students could indicate more than one reason, p. 43)

Though the number of participants indicating interest in a topic appears to make up only a very small count of the total reasons for choosing a prompt topic, the whole story is not revealed by the numbers. From the interviews of those 22 participants who had chosen a given topic because of perceived familiarity or background knowledge,

> many said of the smoking prompt that they simply did not like smoking but could not support their opinion… On the other hand, some students said they wrote on the topic because they had a strong opinion about it (pp. 42-43).

It seems that vested interest in a topic was an initial motivation for selecting a topic after all, but the linguistic demands of the task caused participants to make different selections. It is not surprising that such demands of language intervene toward student selection of different tasks/topics. As recently mentioned, students' own judgments of their own

ability to perform (Parajes and Johnson, 1996) mediate factors that influence overall performance. That is to say, when students perceive a task as too linguistically demanding, they will employ available strategies to reduce the burden of the task (Emig, 1977; Faerch & Kasper, 1989; Odlin, 1989).

Avoidance. When a student either perceives his confidence in his own ability to perform as too low, when the demands of a task become too high for strategies designed to reduce task burden, or when a student perceives the risk of failure (typically perceived as negative evaluation) one option remaining to the student is complete avoidance of participation/production. Quite often, this perception (real or perceived) leads to a general belief about one's own ability to perform generally. Earlier, I mentioned the two traditional goal orientations as *mastery* and *performance*. Elliot & Church (1987) have suggested that this latter category, being extrinsically driven in nature, can be motivated by the success of positive evaluation (referred to as "performance-approach," p. 218) or inhibited by the fear of failure. Such an orientation was labeled by Elliot & Church as *performance-avoidance orientation*.

The patterns evidenced by language students who are avoidance-oriented are very similar – both by degree as well as by type – to patterns exhibited by students who experience what researchers have labeled "apprehension" and "foreign language anxiety" (Faigley, Daly, & Witte, 1981; Horwitz, Horwitz, & Cope, 1986; MacIntyre & Gardner, 1991; Pajares & Johnson, 1994 & 1996; Shell, Murphy, & Bruning, 1989; Horwitz, 2001) While anxiety is not a phenomenon directly researched in this present study, there are effects of anxiety (and avoidance) salient to this study. They are mentioned here.

Steinberg & Horwitz (1986) found that L2 writers with higher levels of anxiety wrote shorter compositions overall, using less-intense words, and qualified less of their writing overall (Daly, 1977; Daly & Miller 1975). Faigley, Daly, and Witte (1981) similarly found a significant relationship between writing anxiety and performance on standardized writing tests (those designed to test more spontaneous writing competence), but not on essays (individual performance). While looking at essays specifically, they observed that, essay type (narrative or argumentative) seemed to override apprehension: Subjects wrote equally complexly when writing using argument, but not with personal narrative. In general, they found that the more apprehensive students produced shorter, less syntactically 'mature' essays. They reported, "syntactic measures show that high apprehensives put less information into each communicative unit, whether at the T-unit or clausal level" (p. 19). Development of ideas also seemed to be affected; those higher-level apprehensives were found unable to develop their ideas as well as low apprehensives.

Suffering from similar effects of anxiety, students who are hesitant to produce in the target language might be evidencing high levels of the so-called *affective filter* (Krashen, 1985). Affective filtering occurs when a student guards too carefully his language productions, often for fear of appearing foolish (or too smart) in front of his peers (or teacher), or fear of correction or a diminished class grade. Willingness to produce isn't the only casualty of affective filtering. Perl (1979) suggested that the development of ideas in language writing can be seriously inhibited by writers with an overly-heightened concern for correct target forms. Rorschach (1986) observed that

writers' awareness of audience caused writers to focus on more on correctness, and not so much on content. Sandler (1987) similarly observed that when her students knew that assignments were to be graded, they resorted to using the simplistic constructions they had already learned well.

Student-Authority/Responsibility for Authorship

I cited Faigley, Daly & Witte (1981) earlier as having found a significant relationship between writing anxiety and performance on standardized writing tests designed to test writing competence. Students who showed higher levels of anxiety scored lower on standardized written tests. However, there was no such finding when students were writing essays. One possible reason for this is the higher levels of control that writers have over a journal, time for preparation, some freedom of topic control, freedom of topic development, and potentially higher levels of interest in the topics.

Paris & Turner (1994) argued that one key component for ensuring student motivation on learning tasks is the "ability to choose among alternative courses of action, or at least, the freedom to choose to expend varying degrees of effort for a particular purpose" (p. 222). Similarly, Lucas and Jurich (1990) reported that journal writing allowed students a level of autonomy in writing not often offered. "They [(students)] wrote about what interested and concerned them, not about predetermined topics assigned by the teacher." (p. xi). Twice I have referred to Sternglass (1980) who observed that students who perceive a writing assignment as meaningless reverted to lower-level cognitive processing for language planning and production than they did when a writing activity was perceived as possessing stimulating objectives/goals. Commenting on the

work of Flower and Hayes (1977), Sternglass states: “Flower and Hayes do not report on their informants complaining about the meaninglessness of the tasks they are engaged in, but the few excerpts they cite suggest no enthusiasm for the task at hand.” (p. 10). Whether or not this level of enthusiasm makes a difference to the processes reported by Flower and Hayes is not reported. Bandura (1986) argued that perceived usefulness of any activity is related to self-efficacy because perceived usefulness assigns value to an activity.

To help overcome this diminished-production-due-to-meaningless-task-perception scenario, Sternglass (1980) had students create one set of writing tasks, and she (along with a team-teacher) created the other set. From the student-selected tasks, participants indicated that they didn’t have to ‘figure out’ the teachers’ goals before writing. She concluded from this that students don’t just write about assigned topics, but they attempt to ‘guess’ what the teacher wants from them. Thus, students’ written products are, at least in part, an indication of their interpretation of an assignment, not simply an indication of ability. She would later further this argument:

> One of the central issues raised by the nature of the writing tasks that were assigned is the degree to which individual writers were free to construct meanings of their own, or whether they would be “boxed-in” by what they perceived to be the constraints of the tasks (Sternglass, 1988, p. 131).

Polio and Glew (1996) suggested that this problem can be dealt with to a limited degree by allowing students a degree of control over their own writing. They suggest that when students are tested with traditional essay tests, they should be allowed to choose from among different topics so as to be better able to display their best writing.

Feedback

As each of these studies points out, student writers are aware of the scrutiny through which their writing will pass, adjusting both how and what they write to present what "looks" best to their readers (typically a teacher); these modifications to writing often come as the result of external (e.g., teacher) reactions/criticisms to prior writing. This type of behavior was characterized by Horwitz, Horwitz, & Cope, (1986) who identified three major types of anxiety (p. 127):

1. Communication Apprehension (shyness/stage fright; difficulty speaking in groups or dyads regardless of language; also fear of learning/receiving a message from a perceived authority).

2. Test anxiety (stems from a fear of failure; student places unrealistic demands on self – anything less than perfect is failure).

3. Fear of negative evaluation ("I don't want to look bad in front of or to you"; though related to test anxiety, this type of anxiety can occur in many other situations besides tests).

Of the three mentioned, both the second and third forms of performance anxiety appear, at least in part, to arise particularly from an (real or perceived) external reaction to performance. As mentioned earlier regarding anxiety and its relationship to writing, fear of negative reaction/failure can cause a propensity toward diminished degrees of TL production.

That there is this type of debilitative response to a potential evaluative situation introduces the complication of the role of teacher feedback to students' written products. Beyond mere number/letter grades assigned to writing, the question arises of whether various types of feedback (such as dialogues, error identification, or error correction), can serve to diminish or encourage student production in the target language.

Reichelt (2001) found in her review of existing research that teacher feedback can be helpful to students when it is content-referenced. Contrastively, focusing only on grammatical errors (e.g., marking off or correcting them) yielded no positive effect on students. Heilenman (1991) noted that though some changes have been made in the pedagogy of foreign language writing (which she calls at best "cosmetic," p. 279) , the approach most teachers still take toward reading/correcting student writing is "learning to produce sentence-level, error-free text…" (p. 278; Cohen, & Cavalcanti, 1990), their predominant attention being focused on grammatical accuracy only. Perhaps this focus is what led Truscott (1996) to call for a complete abandonment of error correction in L2 writing altogether, calling it both an "unhelpful" and "harmful" practice (p. 356).

Semke (1984) cites the major types of feedback typically offered by teachers to their students – content-focused feedback and grammatical feedback, which occurs either in the form of error correction or error identification. Using these as a model for testing, she sought to determine which, if any of the various types of feedback would encourage error-free writing from participants. Specifically, she looked at the effects of content feedback only (group 1), error feedback only (group 2), the combination of the two (group 3), and errors identified by but not corrected (i.e., students were to make their own corrections; group 4). Her main finding, that accuracy was not significantly influenced by any of the four types of feedback, called seriously into question the practice of feedback altogether. Total words written (her definition of *fluency*, on the other hand, did gain significantly when content-based feedback only (group 1) was offered.

Fathman & Whalley (1990) similarly posed the question whether more, less, or equal amounts of content- and grammar-based feedback should be given to students. From their 72 students of intermediate ESL (of mixed L1's), who had been placed into four different groups (no feedback, grammar feedback only, content feedback only, and a combination of grammar and content feedback)[2], they concluded that students did indeed show significant improvement in grammatical accuracy in their revisions when teachers provided grammatical feedback (though all groups studied showed improvements in writing just by rewriting/editing their finished work). Furthermore, content improved globally with rewriting, but higher levels of improvement occurred when teacher feedback was present (content-focused feedback; content improvement was unaffected when feedback to grammar was given). One year later, Kepner (1991) also found that students who received content-based feedback produced higher-level content writing than peers who only received grammar-based feedback. Accuracy remained constant for both groups, however. Fazio (2001) chose to look at a younger audience and a different genre (a journal): From her four-month study of 5th grade majority language learners (French) and minority learners (with 16 different L1's, including Arabic, Farsi, Thai, English, Italian, Spanish, and Hindi), she concluded that neither content-based nor form-focused feedback influenced accuracy in writing.

Liu's (1999) study looked beyond the gains/losses to writing resulting from teacher feedback and considered how students take risks *after* receiving teacher-

[2]Feedback consisted of only general comments in the case of content feedback and error identification but not correction in the case of grammar feedback).

feedback/comments on initial writing drafts. She concluded that her inexperienced writers tended not to take risks in the revision process, while her more experienced writers did (Sternglass, 1980).

Leki (1990), having determined that the results of studying teacher feedback were somewhat contradictory and inconclusive, chose to address the issue from the perspective of the student. She observed that many students felt a level of indifference to their teachers' comments regarding the topics of their writings and expressed a greater desire for the teacher's feedback on individual grammatical forms. Stronger still was Kroll's (1991) observation that students respond in one of four possible negative manners toward teacher feedback:

1. Students, for whatever reason, failed to read teacher feedback; their only concern being for the grade awarded.

2. Students read teacher feedback, but either did not understand it, or misinterpreted it altogether.

3. Students read the feedback and incorporated it into future writings with the intention of 'making the teacher happy.

4. Students regarded their teacher's comments with hostility.

Free-Writing and the Role of the Journal

> Lucas & Jurich (1990) posited:
>
> > [An issue], more narrowly focused on the individual writing classroom is how to engage students in writing that is meaningful and communicative. Journal writing, in which students write about themselves and about ideas and issues of concern to them, fulfills that goal by involving students in authentic communication with a reader who responds primarily to *what* they have communicated rather than *how* they have communicated" (p. xi).

Fathman & Whalley (1990) similarly observed,

> > In the classroom, assignments like those suggested by Raimes (1983)[3], which encourage revision without feedback and writing without teacher intervention (e.g., journal writing), should be valuable components of the curriculum. They require minimal teacher time, help the student write more fluently, and may result in student improvement (p. 186; footnote added).

From a purely pedagogical standpoint, the journal has been a form of writing often ascribed to for language formative encouragement. Casanave (1994), for example, had hoped to show an alternative to discrete item language testing by using journals to map learners' progress in writing overtime. From her three-semester long study, she found rather mixed results:[4] In general, all students (reported on) showed increases over time for each of the three tests (accuracy, fluency, and complexity), but there was no generalizable trend to be drawn from only four sets of journal entries:

[3] Raimes, A. (1983). Anguish as a second language? Remedies for composition teachers. In A. Freedman, I. Pringle, and J. Yalden (Eds.), *Learning to write: First language/second language* (pp. 258-272). London: Longman.

[4] Casanave only tested a few of her students' journals for fluency (measured by total length), accuracy (measured by clauses per T-unit and percentage of complex T-units) and accuracy (measured by error-free T-units and length of error-free T-units) and reported on only four of those tested.

Vanett & Jurich (1990) argued that journal writing incorporates several different kinds of writing, including narration, summary, explanation of another's viewpoint, and persuasion. They also suggest that to there is a tendency for writers to take a rather egocentric position in the journal, unfortunately. As a possibility to counter this, they suggest journal writing should take the form of the *dialogue journal* (Blanton, 1987; Fazio, 2001 Staton, 1998; Peyton, 1990) wherein rather than merely identifying errors or correcting them altogether, the kind of feedback described in the previous section as being the most conducive to successful gains in writing revision and language learning over time, commenting on the content of the writing, is offered.

Semke (1984) used journals for the purpose of increasing total writing fluency. She hoped to show that the different kinds of feedback she used (content-focused comments only, error correction only, a combination of the two, and error identification) influenced the amount her students wrote. Although her study confounded writing fluency with grades in exchange for minimum length in one group and for error-free writing in the remaining three, she did argue that language writing should incorporate a degree of freedom of exploration both of topics[5] and of language use without fear of teacher retribution (i.e., marking each error with a "red pen," p. 195). For this reason, she allowed students in her study to select their own topics and develop them as they saw fit.

[5] Sternglass (1988) likewise stated that students need to be free to explore writing with no assessments attached.

Topic control became a main focus of Weissberg's (2000) study, wherein he hoped to observe morpho-syntactic differences among 5 learners' writings between take-home journals (with student-selected topics) and essays written in-class based on teacher-selected topics (these topics were all academic in nature). At the conclusion of the four-month study, while all participants showed increases in writing proficiency, there was a spectrum of individual differences:

- Over time, one participant began to make register distinctions between academic and journal writing.
- Another student made greater gains in journal writing than in the in-class academic writing over time, experimenting with the language more in the journal.
- One participant gained only slightly in either type of writing.

In general the greatest grammatical accuracy gains were made with the in-class writing activity; however, journal writing always yielded greater grammatical accuracy (accuracy was computed using error-free T-units). This can be seen in Table 2.1 (Weissberg's table 6.4, modified, p. 79). In general, journal writing saw fewer syntactic innovations than in-class academic writing.

Table 2.1
[Weissberg Table 6.4]
[Changes in Grammatical Accuracy Over Time]
(in percent error-free T-units)

	Month 1	Month 2	Month 3
In-class	22.6	27.4	34.2
Journal	36.0	41.8	43.4

Timed Writing

Most of the literature presented to this point has shown the influences on writing without the constraint of time working for or against the finished product. The effect of time constraint on writing is a rather recently-emerging focus of interest. As recent as the mid 90's, Polio & Glew (1996) stated that "little is known about the process of writing under time constraints" (p. 35). Semke (1984) evaluated students' length of written products and number of errors for each relative to different types of feedback, and held writing to within a specific time constraint for the purpose of evaluating overall fluency (defined in her study as total length) for each different feedback type. She did not suggest in her study that writing within a time limit (10 minutes in her study) had any independent effect on the outcome, but was merely a control measure for all students' writings.

Contributing to the process/product battleline, timed writing has been considered by Saunders and Littlefield (1975) to be an "…artificial writing situation…" (p. 147; Kroll, 1990). Reid (1990) found from students writing on either of two tasks (with two different topics each) that when under time-constraint and writing spontaneously with no time for revision, participants wrote with no significant differences to syntactic complexity on either topic type considered (elaborating on a graph versus comparison and contrast of an idea).

Despite this, many researchers argue for the validity and the efficacy of employing timed-writing (Horowitz, 1986a, 1986b, 1986c; Polio & Glew, 1996). Hamp-Lyons (1986) argued that, like essay or academic writing, timed-writing requires carrying

a text through a developmental process (series of developmental steps). Polio and Glew (1996) argued that "….if students are having to do timed-writing in their academic courses, then it is by definition 'real'" (p. 36).

Zamel (1983) was cited earlier as concluding that the major difference between her skilled and unskilled writers was to be found in which group engaged in editing and at what point that editing began. The act of editing as a final step in the writing process suggested that her writers were not under the constraint of completing a task within a given time limit. All of Zamel's conclusions were made by observing writers undertake larger writing tasks where time constraints were not minutes, but days or longer. Wang & Wen (2002), contrastively, concluded from their study of sixteen Chinese EFL learners that while students did have access to both their L1 and L2 while composing (a finding similar to that Zamel), they employed both much less planning before writing, as well as less revision and editing due to the time-constraint placed upon them by the study. One explanation for this can be found in Sandler's (1987) argument that timed writing experiences would force students to look less at overall accuracy and more at 'getting ideas out.' The motivation of the writer shifts away from overall complexity in order to express best what he or she is thinking.

In an attempt to answer the question of timed writing definitively, Kroll (1990) examined the essays of 25 ESL students of different L1 backgrounds, comparing their overall quality and accuracy. With respect to accuracy (how error-free each essay was), she found no differences between compositions written in-class within a 60-minute time period and those written outside of class with 10-14 days preparation time. From these

results, she concluded from time constraint did not seem to affect accuracy. Furthermore, when converting these errors into an accuracy ratio (number of errors divided by the total number of words), she found no statistical difference between home and class-created essays for the total errors produced. As for holistic essay quality (referred to by Kroll as *rhetorical competence,* p.147, operationalized by a complex of total cohesion and coherence, argument success and structure), she found that mean scores for holistic quality were higher with at-home essays than in-class ones. However, there was no statistically significant difference between the two.

In the preceding sections, I have shown from the literature that language writers don't merely focus on the content of their writing. They are very aware, to the contrary, that there may be goals beyond their own (e.g., the goals of their language teacher) which will constrain what and how they write. They are aware of the background knowledge they possess and will apply to their writing. They are also driven (or held-back) by other external and internal factors (such as their own goals, inhibitions, motivations, and fears). And each writer will manifest those factors in individual ways in their language writing. The next section will show how some of these factors have and can influence specific language writing manifestations.

Manifestations of These Influential Factors

Grammatical complexity. A natural extension of both L1 writing lemmas and risk taking, the degree of syntactic and lexical complexity that a writer employs while producing in the L2 is much more than the L2 proficiency of the writer. Faigley, Daly, & Witte (1981) showed that their more apprehensive students produced shorter, less syntactically 'mature' essays, putting "less information into each communicative unit" (p. 19).

It should be clarified that their finding was only a superficial trend. Much more interesting to this study is the finding they made when looking at the *type* of writing each participant engaged in: Participants wrote two different essays using two different styles of writing – the first was narrative and the second was argumentative. From this, they found that (for essays in general) essay type seemed to override apprehension as a factor of grammatical complexity. Their participants (both low- and high-level apprehensives) wrote equally complexly when writing argumentatively, but not when writing personal narratives.

Type of writing as an influencing factor of grammatical complexity was also explored by Way, Joiner, & Seaman (2000). In their study of first and second year French students, they found that among expository, descriptive, and narrative writing tasks, expository writing was the most difficult for students, while descriptive writing was the easiest (these conclusions were made as a result of the total fluency, as manifested by number of words). By contrast, expository writing elicited more complex

writing than did descriptive writing, the latter being the least complex of all three forms of writing.

Foster & Skehan (1996; Skehan & Foster, 1999a, and 1999b) have argued that the task, level of planning, and task or topic familiarity (as well as the interaction of these variables) each influences language production complexity, fluency, and accuracy in different ways and in different amounts. In their 1996 study, they concluded that in oral production, "general task familiarity does not have an influence on the level of complexity achieved." (p. 311). Additionally, none of the complexity measures yielded significant results for any planning condition (unplanned, planned without detail, and detailed planning) or for any task.

Fluency. Wolfe-Quintero, Inagaki, & Kim (1998) all argue that there are different connotations for the measure called "fluency." Their definition is, "how comfortable the second language learner is with producing language… [dependent upon] context and abilities" (p. 13). That is to say, fluency is both the length and rate of production given a stable period of time. They disagree, furthermore, with the notion that higher numbers of words per utterance (e.g., T-unit, clause, sentence, etc.) is a measure of complexity (as such ratios are often used to that end in research), but are, indeed, measures of fluency.

From the most basic standpoint that fluency is writing more, Fathman & Whalley (1990) observed that in the absence of any kind of teacher feedback to student writing, students showed the trend of writing more. Counter to this, Semke's (1984) study of German students found that fluency can be influenced by teacher feedback when that

feedback is in the form of content-based commentary.[6] Of the four groups she tested, only the group which received such feedback showed fluency gains over the other three groups (which received error feedback, a combination of error feedback and content feedback, and identification but not correction of errors respectively). The gains over time, however, were not statistically significant. Furthermore, Semke required a higher minimum word length for a letter grade from her "comment only" group than she did from the other three groups, while making no requirement to producing error-free text from the same group (a requirement that was enforced by a letter grade on the other three groups).

Foster & Skehan (1996) hypothesized that under more carefully planned conditions, participants would show greater levels of fluency in speech. They projected a greater variability in language, and a wider range in tense with more careful planning/preparation for a given task. What they found, however, was a higher-than-expected level of influence exercised by the task than by planning. The most cognitively demanding of three tasks presented to participants (decision-making) diminished fluency more than did either of the other two tasks (personal information exchange and narration). The lowest-level of cognitive demand of the three, personal information exchange, generated the highest levels of fluency, by comparison. Since this study dealt with oral production only, it is questionable of its applicability to written production.

[6] Semke (1984) argued that students suffer a debilitative effect from seeing their products superimposed with teacher corrections and identification of errors. She suggested that content-focused feedback would be a more effective alternative.

Conclusion

This study asks the basic question, will writing change when a language learner selects her own topic as compared to when she is assigned one. Since L2 writing does appear to be influenced by a myriad of different variables, as presented in this chapter (L1 writing-skill transfer, degree of content or background knowledge, difficulty of and familiarity with a specific task, risk-taking and goal orientation, and so forth), the following hypotheses are put forth:

Hypotheses of Fluency in Writing

Hypothesis 1: L2 writers will show greater levels of fluency (i.e., will write more) with topics they feel more cognitively equipped (i.e., for which they have greater levels of background and procedural knowledge).[7] Therefore writing fluency will be greater when learners write from self-selected topics than for assigned topics.

Hypothesis 2: L2 writers will show greater levels of fluency with topics in which they have greater interest.

Hypotheses of Complexity in Writing

Hypothesis 3: L2 writers will take greater risks with grammatical complexity when writing about topics for which they feel higher levels of content knowledge.[8] Therefore L2 writers will show higher levels of grammatical complexity for topics which they select than for ones they are assigned.[9]

Hypothesis 4: L2 writers will show higher levels of grammatical complexity with topics in which they have greater interest.

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[7] This study makes the assumption that L2 writers will self-select topics that they feel the most confident in addressing and cannot predict the topics that they will be assigned. This assumption is founded on the work of Polio & Glew (1996).

[8] Skehan and Foster (1999a)

[9] There is the assumption here that topics self-selected will be more familiar than the topics assigned. This assumption is underpinned by Sternglass (1980), who argued that students often have to 'guess' what the teacher wants from them when they write.

According to the literature presented, as a learner addresses the topic she either selects for herself or is assigned by the teacher, affective variables (such as interest) will influence not only what she writes (as in the case of a self-selected topic), but also how she writes (the degree of grammatical complexity) and how much she writes (her overall writing fluency). Since L2 writing involves a complex series of processes, determining how differences in such writing will manifest themselves requires setting specific guidelines. The next chapter will discuss the guidelines and boundaries of the study.

Chapter Three
Method

This study seeks to evaluate differences manifest in journal entry writings of third-semester students of German when topic control is modulated between teacher-assigned and participant-selected. The study is guided by the following research questions:

1. Does topic-selection control (teacher-selected topics versus student-selected topics) influence a participant's expressed interest level in a topic or a participant's self-assessment of the quality of a piece of writing on the said topic (referred to as *confidence in a written product*)?

2. Does topic-selection control (teacher-selected topics versus student-selected topics) influence a participant's fluency in writing (as measured with a general fluency index) or a participant's grammatical complexity in writing (as measured with a general complexity score)?

3. Do interest level, confidence in a written product, or a combination of both influence participants' fluency and/or grammatical complexity?

4. Is there any correlation between any of the variables previously listed (interest, confidence in a piece of writing, fluency, or complexity) for each type of topic control modulation (self-selected and teacher-assigned)?

5. Does previous experience with keeping a journal (either in the L1 or another language) correlate with confidence in a piece of writing, writing fluency, or grammatical complexity?

6. Is there a correlation between a given participant's expressed goal orientation (mastery / performance / avoidance) and his or her performance relative to those variables previously listed (interest level, confidence in a piece of writing, fluency, or complexity)?

The design of the study consists of a single independent variable: Teacher assignment of a topic versus individual selection of a topic. The dependent variables of this study are as follows:

1. Grammatical complexity as manifest by several a linguistic complexity analysis and a clause complexity analysis (see the section labeled *Analysis* below for a detailed description of these two analyses).

2. Fluency in writing of individual entries as determined by a fluency (type-token) ratio (again, see the *analysis* section of this chapter for a description of the type of ratio used to calculate fluency).

3. Indicated level of interest a student has in the topic of an entry.

4. The level of confidence a student has in a written piece of work at its conclusion.

In addition to the independent variable of topic control, the dependent variables of *interest in a topic* and *confidence in a written product* were considered intervening variables and were also analyzed as independent variables influencing grammatical complexity and fluency.

Previous experience with writing in a journal was also correlated with the variable of *confidence in a written product, complexity,* and *fluency*, to see if there was any relationship between writings obtained in this study and past experience that participants might have had with a similar writing type (spontaneous or free-writing, addressed in chapter two).

The only variable unaccounted for from these is the confounding effect any one topic can have on grammatical complexity or rhetorical style. For example, the topic of "my family" may yield very non-complex, undeveloped sentences, where each family member becomes a topic with little or no comment. Since topics self-selected by

students cannot be necessarily predicted, any analysis conducted will have to qualitatively consider topic choice.

Pilot Studies

Two successive pilot studies were completed in advance of this study during consecutive semesters. The first identified the most common topics selected by students who kept a journal in their target language (German). These were, in order of frequency (out of 131 entries): family and personal relationships (18), personal narratives (18), and school life (17). From these came the following four topics to be tested in the second pilot study:

1. Something Unusual From My Life
2. My Family
3. My Life As a Child
4. Why I Do/Don't Like My Schedule/Routine

The second pilot study examined differences in length, and grammatical complexity between journal entries where the topic was self- (student) selected and those that were teacher-assigned. The measures of grammatical complexity were evaluated at the clause level. This was done due to the work of Bardovi-Harlig (1992) who argued that the T-unit (a standard unit of measure for determining grammatical complexity, accuracy, and fluency – introduced by Hunt, 1965) does not consider the advanced complexity of embedded relative and subordinate clauses. She cites as an example of this problem the following sentences:

I like my neighbor and she is a singer

and

I like my neighbor who is a singer.

While the latter employs subordination (which according to Bardovi-Harlig represents a higher level of syntactic complexity) it only counts as one T-unit. The first sentence which is two independent clauses joined by a coordinating conjunction is counted as two T-units, and therefore contributes twice as much in a traditional count of T-units as a measure of complexity. This statement is further augmented by the nature of German word order, which changes in relative and subordinate clauses (SVO → SOV). Ishikawa (1995) pointed out that the clause had greater predictive value than the t-unit with all subjects studied, and that the clause in general was the more accurate measure when studying the writing of non-advanced language users.

Results obtained from this study may be different when looking at a larger body of participants. The group which wrote on self-selected topics wrote slightly more clauses (M=13.77) than did their peers who were assigned topics (M=12, $p=.045$). The assigned topic group wrote more non-canonical clauses[1] (i.e., clauses which used inversion, *VSO* or *OVS*, subordination *SOV*, or particle and compound verbs, *SVOV*) than did the self-selected group, however, a statistical analysis of mean scores from both groups revealed that the higher count was not significantly different. Moreover, the group who wrote on assigned topics showed higher levels of lexical complexity (see the *analysis* section below) and clause complexity (determined by word order and total numbers of non-canonical clauses) than did those students who wrote on self-selected

[1] All sentences that were not SVO (canonical) were counted regardless of accuracy.

topics (M= 33.9 compared to 24, $p<.001$). Assignment versus self-selection of topic did not seem to influence the level of interest reported, but those who selected their own topics generally indicated a higher level of confidence in their finished product than did those students who were assigned a topic. Furthermore, interest level in a given topic on the whole showed no significant correlation with writing complexity.

Students' assessments of their own writing (confidence in a written product) likewise showed no strong correlation with any effects studied. There was, however, a strong correlation between the number of clauses in an entry and confidence in a written product for the teacher-assigned group (r= .599, $p<.001$), but not for the self-selected group.

Fluency had no significant correlation with attempted non-canonical clauses. This suggests that those students who use a wider variety of lexical items are not more likely to arrange them into more complex strings (clauses) where SVO isn't the norm.

Changes Made in Methodology Since the Pilot

Because many of the anticipated variables showed very low correlations with topic modulation, it was decided that the four topics tested needed to be adjusted. For that reason, four new topics were selected from a series of texts read throughout the 312K semester. These topics were modified to incorporate elements of the original four most frequent journal topics.

The topics selected from the reading texts were[2]:

1. Life After School is Finished,
2. The Differences Between Men and Women
3. Relationships
4. Leisure

Participants

All participants were at approximately the same level of language proficiency, either due to successful completion of second-semester German, or intensive first-semester German ('successful completion' being defined as completing the course with a grade of "C" or higher), or by taking a written placement exam offered by the university at which the study was conducted. Beyond this, no further control over homogeneity of language proficiency was taken. Participants were members of four different third-semester German courses, taught by one of three different instructors; they were not randomly assigned, but formed samples of convenience. This level of student-participant was selected for the following reasons: First, students at the conclusion of the second semester of German do not yet have complete target grammars (i.e., they are still learning new constructions). This may prove an indication of both grammatical complexity and overall fluency, if newer structures are included only in certain types of journal writing; second, students at the third semester at this institution engage in more regular writing activities than during the previous two semesters, and, as a result, are more apt to write

[2] These topics were presented to each participant without further specification or constraint. Each writer was to expound on the open-ended topic as he or she saw fit.

longer, more complete (and possibly coherent/cohesive) journal entries than students in a lower level.

Participants totaled 81 individuals, 48 males and 33 females (which was not controlled nor considered as a variable to the study). One instructor taught two separate sections of 3rd-semester German, and each of the other two instructors taught one 3-semester German section each. The four courses were counter-balanced with respect to topic control in order to determine if order of treatment influenced performance and to account for any effect that practice or general learning/improvement over time might have on the results. The two classes taught by the other two teachers (who only taught one class each) formed one counterbalanced group, and the remaining two classes (both taught by the same teacher) formed the second counterbalanced group. Although counterbalancing across classes with different teachers does introduce a potential confound, the four different classes were not statistically compared against each other; therefore the effects of the confound were contained. After the fourth week of the study, the control of topics was switched respectively: those students who were assigned topics for journal entries during the first four-week period self-selected topics for the second four-week period, while those who wrote on self-selected topics at the onset wrote on assigned topics during the last four weeks of the data collection. The design can be seen in Table 3.1

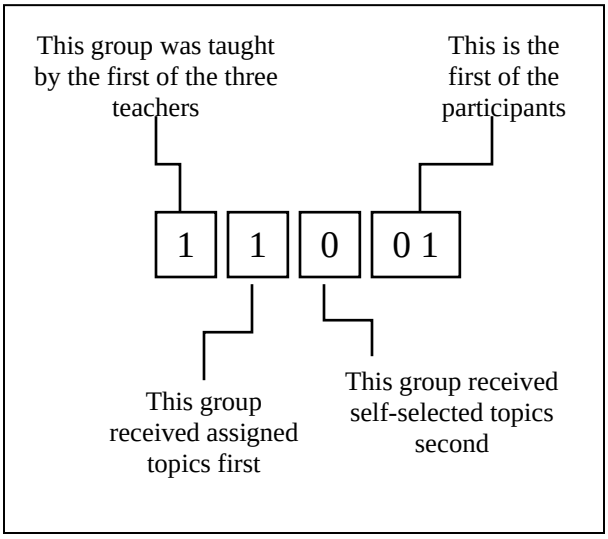
Table 3.1
Design of the
Counter-Balanced Study

Week	Groups 1 and 3 Taught by Instructors #1 and #2	Groups 2 and 4 Both Taught by Instructor #3
One	Life After School is Finished	Self-Selected
Two	Differences Between Men and Women	Self-Selected
Three	Relationships	Self-Selected
Four	Leisure	Self-Selected
Five	Self-Selected	Life After School is Finished
Six	Self-Selected	Differences Between Men and Women
Seven	Self-Selected	Relationships
Eight	Self-Selected	Leisure

Age was neither controlled nor considered as a variable for evaluation in this study, but all participants were at least of age 18 (capable of legally signing a statement of informed consent).

Each group was assigned a three-digit code which reported the teacher (1, 2, or 3) and the treatment order (0 for self-selection of topics, 1 for teacher assignment of topics). Participants in each group received a two digit code based on order or assignment to study (01 being first, 02 being second and sequentially so forth). Therefore, the code 11001 (a participant in the first of the four groups) conveys the following information (as seen in Figure A):

Figure A
Explanation of Codes



Attrition

In addition to students refusing participation in the study and students who dropped the course after agreeing to participate, there was attrition among participants in the study – those who didn't complete at least 2 entries per topic modulation-type (free-writing or assigned writing). Of the original 81 participants who completed the course and agreed to participate in the study, 7 participants (5 males and 2 females) were removed from the study for having too few entries, leaving 74 participants, of which 43 were male and 31 were female.

Procedure

The journal writing exercise was a component of the 3rd-semester German course syllabus. All students enrolled in 3rd-semester German during the time of the study, irrespective of whether they choose to or not to participate in the study, completed all

journal entries. The writing activity took place during the first 10 minutes of class on the same day each week (Wednesday).[3] As mentioned earlier, the research design was counter-balanced, two classes having started with self-selected topics while the two started with teacher-assigned ones. The assigned topics were selected from a reader (text) that is a regular part of the course. These topics were then adjusted to reflect more closely the topics collected from students' journals during the first of the two pilot studies. Data were collected once a week for eight weeks. Of the eight samples of writing, four samples were created from student-selected topics, the other four from teacher-assigned ones (each of the three German instructors assigned the same four topics in the same order).

Participants were instructed to write for 10 minutes at a time at the beginning of class. Dependent on which side of the counterbalanced design the courses were situated, the teacher either informed participants of the topic, or announced that the topic was "open" or a "free-choice." This "free-choice" does introduce a potential confound to the study, since it cannot account for the influence a freely-selected topic might have on the complexity of a written product. Thus results presented may have also been influenced by topics themselves.

For unknown vocabulary, students were allowed to use dictionaries or textbooks; they could also ask the teacher for unknown words. Students were, however, encouraged to write without these (due to time constraints). Since grammatical complexity was a

[3] Ten minutes as a time limit was defined both by practicality (teachers needed the remaining time for coursework – the class was 50 minutes long) and from a claim made by From Chavez (1996), who suggested that "generous time limits could diminish performance differences among subjects." (p. 169).

dependent variable in the study, no references of any kind (including asking the teacher) were allowed for grammar[4]. No requirements were made as to the mechanics of writing (vocabulary, sentence structure, length, accuracy) other than that each entry was to be in German. Students received a grade for completion of the writing activity rather than having teachers assign them a grade based on length, accuracy, level of complexity, which would introduce a confound into the study. Students were informed that they would receive a grade based on completion only and were made aware that they would not be graded on accuracy, length, complexity or other mechanics.

Students received feedback from the researcher (offered in German) based solely on the content of each entry (not on grammar). The feedback given was relevant to the topic and individual statements of each writer. These comments occurred as "stock phrases" such as *interesting, congratulations,* or*, I'm sorry to hear that*. Such statements were chosen since they apply to a wide range of different topics and situations, and show no favoritism to any individual or group. Although the exact number of feedback phrases was not the same for each participant (since length/depth of entries differed by student), each main idea in a given entry received a comment.

At the completion of each in-class entry, participants were asked to indicate an overall amount of interest experienced in writing on the topic of that entry. This indication was elicited using with a six-point likert scale[5], which ranged from "extremely interesting" to "extremely uninteresting." Similarly, students indicated the level of confidence they had

[4] Although "cheating" (students using their textbooks for grammar) was not controlled, no teacher reported observing any students looking up grammar rules.

[5] An even-numbered (6-point scale) was used to prevent the neutral or undecided/uncertain answers that can occur when there is the existing midpoint of an odd-numbered scale.

in their written product, again on a 6 point likert scale; this scale ranged from "representative of some of my best work in German" to "representative of some of my poorest work in German." Participants indicated their interest and confidence with two different scales which were pasted into their journals prior to their writing for the day. The two scales were pasted into each journal each week (see Appendix B). Occasionally, participants either checked more than one box on the interest level/confidence level inventory at the conclusion of an entry, or placed a check in between the boxes (indicating being torn between two choices). When this occurred, the lower level of interest/confidence was selected for the study. The rationale for this is as follows: If a participant were more certain of the degree of interest or confidence, there wouldn't be a division. Hence, divisions should be dropped, not raised to the next level. Additionally, a participant occasionally checked more than one box indicating having had a change of mind. Whenever a student attempted to show which choice was the actual intended selection (e.g., arrows drawn toward one of the boxes, a statement identifying the student's actual indication or a check being crossed/blackened out), the box that appeared to be the student's final choice was used. When such an identification was not visible, the lower score, as before, was selected.

At the conclusion of the study, participants received a questionnaire (Appendix C) wherein they indicated their past five years' experience with keeping a journal or diary (along with all languages the writer had used to keep those journals) as well as the frequency with which the journal/diary was kept. Of all participants who completed the survey, 14 participants indicated not having written in a journal for the past five years, 7

indicated having written less than once every two to three years, and 6 indicated having written in a journal less than twice per year. Of those who wrote more regularly, seven participants indicated having written three to four times per year, 13 indicated having written more than five times per year, but not monthly, and 21 reported having written in a journal at least once a month. Two participants did not complete the questionnaire. This questionnaire was given at the end of the study rather than before it so as to avoid any potential influence that participant awareness of previous journal experience might have on the writing (e.g., causing a participant who has no previous experience writing a journal to feel at a disadvantage in the course, or causing a participant with previous experience to feel at an advantage in the course).

Additionally, to determine the orientation of the students (mastery-, performance-, or avoidance-orientation), participants completed an inventory developed by Elliot & Church (1997) to determine motivation orientation (performance-, mastery-, or avoidance-oriented). The 18-point inventory was found by the researchers to predict accurately the orientation of participants to a statistically significant level. This questionnaire can be seen in Appendix D.

Each entry was scanned and stored as a .jpg (JPEG) extension file. Two copies of each JPEG image were made; the first JPEG image remained untouched, so as to provide a clean copy of each participant's data (since every participant was given his/her respective journal at the end of the study). The second JPEG file was used to aid in codifying data. In addition, for purposes of ease in reading and performing word

searches, each written work (journal entry) was additionally transcribed using Microsoft® Word XP.[6]

Codification of the data from each JPEG image required identification of clause boundaries. This meant identifying all clauses, accurate clauses, non-canonical clauses, and accurate non-canonical clauses (determined by accurate placement of the verb, not by the conjugation or spelling of the verb), and all words that did not occur within a clause[7]. This identification was accomplished using ArcSoft© PhotoStudio 2000, a photo editing program designed for the Microsoft® Windows operating systems. With this software, the second copy of each JPEG image was color-coded to mark clause boundaries, and each of the different types of clause components mentioned (see Appendix E for a sample of a clean copy and a highlighted image). Each of these counts was stored in a master spreadsheet created with Microsoft® Excel XP (see Appendices F-I).

Each written work (journal entry) was transcribed using Microsoft® Word XP. Three copies of the transcribed entries were made. The first copy of the transcriptions was a "clean" copy of what each participant wrote. The second copy highlighted all complex[8] words (these highlights were color-coded to show different levels of complexity – see the next section labeled *analysis* below for a description of the levels of lexical token complexity). The final copy of transcriptions reported the complexity score of each individual clause (signified via the "Insert Comment" function of Microsoft®

[6] Since only word-level analyses were used with the transcriptions of each piece of writing, retention of grammatical or lexical errors was not controlled within the transcriptions. In fact, each transcription was alphabetized and placed in a table for ease in counting total different words occurring in each piece of writing.
[7] See the subsection labeled "identifying clause boundaries" under the heading "analysis."
[8] Lexical complexity of words was determined using a series of rules described in the next section (labeled *analysis*)

Word (see Appendix J for samples of each of these three transcriptions). The counts (and scores) of each complex word and the total scores of clause complexity were also stored in the master spreadsheet with Microsoft® Excel XP

Analysis

Data taken from each of the eight journal entries of each participant were analyzed for grammatical complexity, accuracy[9], and fluency at the clause level. The analyses conducted are as follows:[10]

Grammatical Complexity

Foster and Skehan (1996) define grammatical complexity as, "progressively more elaborate language [and] a greater variety of syntactic patterning" (p. 303). Furthermore, Wolfe-Quintero, Inagaki, and Kim (1998) suggest that analyses of complexity are not concerned with *how many* production units are present (i.e., clauses, T-units), but rather *how varied/sophisticated* those units are. This means, an effective analysis of complexity requires looking not only at the clause itself, but at what is inside each clause. For purposes of this study, grammatical complexity is broken into both lexical and syntactic complexity.

Lexical complexity. For this study, lexical complexity is the sum of all complex words (referred to as *complex tokens*[11]) that occur within a written product. As specified

[9] Syntactic accuracy mostly applies to the placement/conjugation of the main/auxiliary and extra verbs within the clause (see the next subsection, labeled "accuracy" for an explanation of how syntactic accuracy was scored).
[10] See Appendix K for the rules which governed clause boundary and clause type identification.
[11] Note: Lexically complex items in this study did not include gender endings on nouns, articles, adjectives, or plural forms.

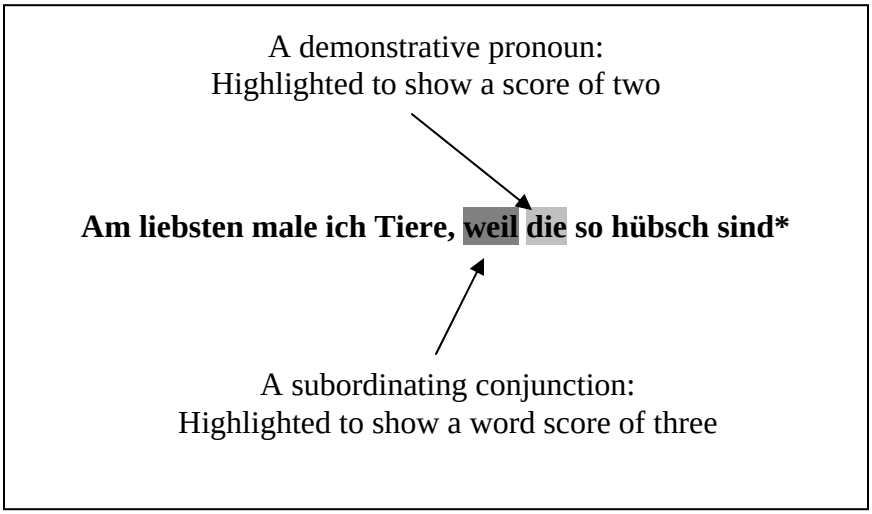
in the procedure for data collection, participants were allowed to use a dictionary (or ask their teacher) for unknown words. Since this can cause a confound to identifying more complex tokens, only those units which influenced word order, and whose accurate grammatical use could not be easily found in any dictionary/lexicon were sought as a means of contributing to total complexity (for example, the adverbial *heute* (today) can be looked up in a dictionary, but that dictionary will not inform a student that when beginning a sentence with *heute* that the verb must be inverted, that is placed immediately after the adverbial and before the subject). To be scored as a complex token, each identified token required pragmatic/grammatical feasibility and a degree of accuracy in use. Accuracy of use was predominantly related to verbs with additional rules of placement, such as separable verbs. Such verbs occupy two positions in canonical word order – second position (following the subject), and clause-end for the prefix.

Accuracy of gender and case for nouns (including correct articles), and adjective endings were not considered for accuracy, neither was spelling. Three different levels of lexical items were isolated for this study (each level receiving an increased point value, starting at 2 points for the lowest levels, based on how the incipience of each affected word order in the clause). These tokens were identified as *second degree* (those which received two points), *third degree* (receiving three points), or *fourth degree* (receiving

four points) *tokens.*[12] The exact tokens and the procedures for identification of each are described in Appendix K.

After all complex tokens were identified and scored, the total lexical complexity score is divided by the total number of words in each entry. This ratio forms the lexical complexity portion of the total complexity score. An example of this, and how a complexity score of (one sentence contributing to the entire set of actual results for participant number 11001, week 1)[13] can be seen in Figure B and Table 3.2.

Figure B
Lexical Complexity Score for one Sentence
Participant 11001
Week 1



*I like to paint animals the most, because they are so cute

[12] This complexity score is based on the index influenced by Endicott (1973) and further developed by Flahive and Snow (1980). The terms *second, third*, and *third degree tokens* are my own creation.
[13] See Figure A earlier in this chapter for an explanation of the code *11001*.

Table 3.2
Lexical Complexity Score Index:
Participant 11001
Week 1

Total Category 2 Tokens Score	Total Category 3 Tokens Score	Total Category 4 Tokens	Raw Score of Complex Tokens	Total Words	Lexical Complexity Score
2: (1 Token x2=2)	9: (3 Tokens x3=9)	0: (0 Tokens x4=0)	11 (2+9+0)	87	0.13 (11/87)

Syntactic complexity. For this study, syntactic complexity in writing was analyzed at the clause level; a clause was considered to increase in complexity every time any type of non-canonical (subject, verb, object or other – SVO) word order was used by participants, including:

Verb, Subject, Object or Other – VSO

Object or Other, Verb, Subject – OVS

Subject, Object or Other, Verb – SOV

Compound verbal clauses (as in subject, verb object verb or verbal particle – SVOV) were also considered to be more complex than SVO order. Each of these different types of word order was considered to be of different levels of complexity, and like the complex tokens, each complex clause received a numeric score. Some complex tokens, however, required only existence within a lexically relevant context to be scored for points (second and third degree tokens) without accurate verb placement. In order to score the complexity of clauses (such as the clause-end position of the main verb in subordinate clauses), a degree of grammatical accuracy was additionally required,

specifically accuracy of placement (similar to fourth degree tokens) of the main and other verbs within the clause. The types of clauses this study considered were scored as were complex canonical clauses, clauses which employed subject-verb inversion, infinitive clauses and phrases, and non-canonical clauses. The categories of clauses considered for the study are identified in Appendix K.

In addition to these categories of scored complex clauses, other clauses were written that were merely non-canonical (meaning not SVO), but were not necessarily grammatically accurate with respect to verb placement. Such were considered *attempted non-canonical* clauses. One such example is the sentence:

Morgen ich gehe zu der Universität (Tomorrow, I'm going to the university)[14]

Such clauses received the same score as the category of accurate complex clauses they most closely resembled. The example clause most closely resembles inversion (characterized by object or other, verb, subject – OVS; number three above) and would be scored as such. To prevent non-accurate attempts of complex clauses from causing scores to be disproportionately raised, the scores of all accurate clauses were doubled.

After all complex clauses for one piece of writing were scored (the scores of all attempted non-canonical clauses and twice the value of all complex clauses), this total was added to the lexical complexity score to form a total complexity score. An example of this (one set of actual results for participant number 11001)[15] can be seen in Table 3.3 and Table 3.4.

[14] This sentence is object or other, subject, verb, object or other – OSVO which is not grammatical in a main clause in German, since main verb must always occupy the second position within the sentence.
[15] See Figure A earlier in this chapter for an explanation of the code *11001*.

Table 3.3
Clause Complexity Score:
Participant 11001
Week 1

Complexity Score of Clauses	Non-canonical Clause Score	Total Clause Complexity Score
10x2=20	3	20+3=23

Table 3.4
Total Complexity Score:
Participant 11001
Week 1

Lexical Complexity Score	Total Clause Complexity Score	Total Complexity score
0.13	23	23.13 (0.13+23=23.13)

Fluency. Wolfe-Quintero, Inagaki, and Kim (1998) establish that fluency is "how comfortable the second language learner is with producing language… [dependent on] context and abilities" (p. 13). It is expressed as length and rate of production within a given and stable time constraint (for this study, within a 10-minute time period). Fluency, in this study, is quantified by a ratio of total different words occurring in an entry to the total words in the entry. Since such a ratio is expressed as a percentage, it is incapable of discriminating between longer and shorter entries when the ratios of

different to total words are identical. Wolfe-Quinterro, Inagaki, and Kim (1998) highlight a potential problem with such ratios:

> When a sample is collected under timed conditions, if one learner produces a longer sample with a certain proportion of word types, but another learner produces a shorter sample with the same proportion of word types (hence fewer overall types), they would both receive exactly the same type/token ratio score. This isn't desirable, because the one who maintained the proportion over a larger number of words in the same amount of time clearly exhibits greater lexical complexity (p. 102).

To offset this kind of weakness, Carroll (1967) suggested a more sensitive type token ratio. This index is the total number of sought words (or word types) divided by the square root of twice the total number off all words (or word types). Although Carroll's initial intent was for this index to be used for lexical complexity, it can be used as a measure of fluency. This ratio was also used by Arthur (1979) who found it to discriminate effectively between different writers when proportions were identical but length was different. Table 3.5 illustrates the difference between Carroll's index and a standard percentage index.

Table 3.5
Comparison of the
Standard Percentage Ratio and
Carroll's Ratio

Total Count: Different Words	Total Count: All Words	Percentage Ratio	Carroll's Ratio
2	4	0.5	0.707
20	40	0.5	2.236
200	400	0.5	7.071
2000	4000	0.5	22.360

Accuracy. Foster & Skehan (1996) and Wolfe-Quintero, Inagaki, & Kim (1998) point out that there is a tradeoff between accuracy and complexity in writing. Furthermore, Sandler (1987) argued that timed writing assignments force students to consider accuracy less and expression of ideas more. Casanave (1994, citing Kroll's 1990 research), suggested that, "…writers were able to show control over the level of either syntax or rhetoric while simultaneously showing poor control at the other level" (p. 150). For these reasons, grammatical accuracy was not considered as a dependent variable for study. Accuracy, however, was used to augment the lexical complexity score so as to prevent scores resulting from attempted but ungrammatical non-canonical clauses (see above) from skewing the results. This use of accuracy as a contributor toward the total complexity score is something of a "necessary evil," since accuracy of verb placement determines the type of non-canonical clause being written, and therefore the score each clause receives. Since that is the case, and keeping with the trade-off argument of the authors just cited, accuracy of syntax within clauses considered only the placement of the verb within a clause.

Lexical accuracy was also not considered as a dependent variable for the study, since students (though encouraged not to for purposes of losing too much time) were allowed to access any lexical reference desired.

Statistical Analyses

The results obtained from participant-indicated levels of interest in a topic, confidence in a written product, and general fluency index and total complexity scores were statistically analyzed within each group to observe changes to the writings by mean

score, and to see which main effects correlated (or did not), for the purpose of evaluating the effects the different tasks had on writing performance. The results of each analysis were numerically codified for a within group statistical analysis (both multivariate analysis of variance, *MANOVA*, for the interaction of all main effects on dependent variables, and univariate analysis of variance, *ANOVA*, to observe main effects individually) of the text and content analyses (points one and two mentioned under *analysis*). The results obtained from the text analysis were also correlated with the results obtained from the goal-orientation questionnaire and the participants' indicated reports of experience with keeping a journal.

Analysis of all results was accomplished with a 14-day trial-version of *Statistics Package for Social Sciences* (SPSS), version 13.0. All tables and graphs illustrating statistical findings were initially completed using this same software; the graphs were later re-produced using Microsoft® Excel XP.

Chapter Four
Results

This study endeavors to determine the degree of influence that exists when control of topics for spontaneous writing is modulated between teacher-assigned and student-selected. In the preceding chapter, I indicated how the elicited writings were codified, textually (predominantly syntactically and lexically) analyzed and statistically analyzed. In this chapter I present the findings of those statistical analyses. By way of review, there were four individual groups, taught by three different teachers – one teacher taught two different groups, and the other two were taught by different teachers. Those two groups taught by different teachers were counterbalanced with regard to treatment order, while the other two taught by the same teacher were counterbalanced against each other. In chapter three, I introduced the format of this counterbalancing. I reproduce it here for review in Table 4.1.

Table 4.1
Design of the
Counter-Balanced Study

Week	Groups One and Three	Groups Two and Four
One	Life after school is finished	Self-Selected
Two	Differences between men and women	Self-Selected
Three	Relationships	Self-Selected
Four	Leisure	Self-Selected
Five	Self-Selected	Life after school is finished
Six	Self-Selected	Differences between men and women
Seven	Self-Selected	Relationships
Eight	Self-Selected	Leisure

The following chapter will explore the meaning and pedagogical application of the results obtained from the statistical analyses in the preceding chapter. Since each class received a different combination of teacher and ordering of treatment types, all statistical analyses are presented by individual group.[1] The complete statistical tables for each analysis (by group) can be seen in Appendices L-N.

Correlations of Main Effects[2]

Group 1 was taught by a teacher who did not teach any other group in the study. Participants in group 1 were assigned topics for the first four data collection periods and selected their own topics for the second four. Group 2 was also taught by a teacher who did not teach any other group in the study. Participants in group 2 selected their own topics for the first four data collection periods and were assigned topics for the second four.

Groups 3 and 4 were taught by the same teacher. Participants in group 3 (like group 1) were assigned topics for the first four data collection periods and selected their own topics for the second four, whereas participants in group 4 selected their own topics during the first four weeks, and were assigned topics for the second four (like group 2).

[1] In chapter three, I mentioned the potential confound that existed due to studying four different classes with different teachers when classes were counterbalanced. To alleviate this confound, the results of each class (referred to as groups 1, 2, 301, and 310) were individually analyzed.
[2] See Appendix L for complete correlation tables of all groups.

Experience with Journal Writing

Previous experience with keeping a journal yielded a significant positive correlation (r = .299; p=.033[3]) with the total complexity score for group 1 when topics were assigned by the teacher. No similar significant correlation was observed when topics were self-selected.

Unlike group 1, previous experience keeping a journal did significantly correlate with fluency for either type of topic modulation for group 2. However, experience with keeping a journal did significantly positively correlate with the total complexity score for this group (r = .251; p=.027) when students wrote on teacher-assigned topics.

Group 3 yielded no significant correlation between previous experience and any main effect for writings obtained from assigned topics or self-selected ones.

For group 4, prior experience keeping a journal significantly positively correlated with the general fluency index for both self-selected topics (r = .361; p=.004) and assigned topics (r = .334; p=.006). Additionally, experience with a journal significantly positively correlated with the total complexity score for both self-selected topics (r = .446; p<.001) and assigned ones (r = .350; p=.004).

Interest

Student-indicated interest in a topic showed positive correlations with several different categories for group 1. The strongest of these was between interest and student-indicated levels of confidence in their own written products. Correlations for this pair of variables were strong for both assigned topics (r = .547; p<.001) as well as for self-

[3] Significance was established at p=.05

selected ones (r = .700; $p<.001$). Interest also significantly positively correlated with the general fluency index for group 1 when students selected their own topics (r = .391; $p=.005$). There was no significant correlation observed between interest and fluency when topics were teacher-assigned. Unlike the previous pairs, interest-level showed no significant correlations with the total complexity score for either teacher-assigned or self-selected topics.

Like the group 1, student-indicated interest showed its strong positive significant correlations with student-indicated levels of confidence in their own written products for group 2 for both assigned topics (r = .479; $p<.001$) and self-selected ones (r = .376; $p=.001$). Interest and fluency in writing also significantly positively correlated for both assigned and self-selected topics for group 2.[4] Again, the correlation existed both when students wrote on teacher-assigned topics (r = .368; $p=.001$) and on self-selected ones (r = .315; $p=.005$). Additionally, like group 1, there was no significant correlation between interest and the total complexity score for either self-selected or assigned topics for group 2.

For group 3, the only significant correlations observed with interest came with student-indicated levels of confidence in their written products. For writings elicited through assigned topics, there were significant positive correlations for both assigned (r = .568; $p<.001$) and self-selected topics (r = .322; $p=.004$). There were no significant correlations between interest and any other main effect.

[4] Group 2 was the only group among the four that showed any significant correlation between interest level and fluency

Unlike the previous three groups, group 4 only showed a significant positive correlation between indicated interest level in a topic and confidence when students wrote on assigned topics (r = .386; *p*=.001). There were no other significant correlations with interest for this group. These differences (and similarities) between the groups will be discussed in the next chapter.

Confidence

Like interest in a given topic, participants' self-evaluations of the quality of their own work (referred to as *confidence in a written product*) yielded several interesting correlations for group 1. The strongest of these was with the general fluency index. Both assigned and self-selected topics yielded significant positive correlations for this pairing (r = .444; *p*=.001 for assigned topics; r = .545; *p*=.001 for self-selected topics). Confidence also correlated positively with the total complexity score[5] for student writings for this group, but only when the writings came from self-selected topics (r = .336; *p*=.016). No significant correlation for confidence and complexity was observed when writings came from assigned topics.

For group 2, participants' indicated level of confidence in their written products showed a significant positive correlation with fluency (r = .230; *p*=.044) when students wrote on topics assigned by the teacher. There was no similar significant correlation for writing fluency when students self-selected their topics. Unlike group 1, this group yielded no significant correlations between confidence in a written product and the total

[5] See the end of this chapter for a description of how the total complexity score was calculated

complexity score. This was the case with both self-selected and assigned topics. This phenomenon will be addressed in chapter 5.

For group 3, there were no significant correlations between confidence and fluency approached significance. Confidence did, however, correlate significantly (positively) with the total complexity score for writings elicited from self-selected topics ($r = .246$; $p=.031$), but not from those which came from assigned topics.

Group 4 participant-indicated confidence in written work showed a significant correlation when writings were elicited from assigned topics, but not from self-selected ones. Confidence correlated significantly (positively) with fluency ($r = .371$; $p=.002$) for assigned topics, but not for self-selected ones. No significant correlations were observed with writings elicited from self-selected topics.

Complexity

The total complexity score correlated strongly (positively) with the general fluency index for all groups, from writings obtained from both assigned topics as well as from self selected ones. These correlations can be seen in Table 4.2.

Table 4.2
Correlations between
The Total Complexity Score
and The General Fluency Index

	Assigned Topics		Self-Selected Topics	
	Correlation Coefficient (r)	Significance	Correlation Coefficient (r)	Significance
Group 1	.555	$p<.001$	.569	$p<.001$
Group 2	.512	$p<.001$	.481	$p<.001$
Group 3	.560	$p<.001$	.560	$p<.001$
Group 4	.519	$p<.001$	.365	$P=.003$

Correlations of Main Effects and Goal Orientation

Goal orientation was determined by participants' responses to Elliot & Church's (1997) 18-question survey for identification of motivational (goal) orientation. The three types of motivation established within this questionnaire are performance-orientation (participants perform required tasks to "appear" knowledgeable or competent), mastery-orientation (participants perform required tasks with the intention of successfully learning), and avoidance-orientation (participants only perform required tasks to a minimum because the content of what they are learning is either too stressful or perceived as too difficult).

Performance Orientation

Group 1 showed significant positive correlations between performance orientation and participants' expressed confidence in written productions for both assigned ($r = .346$; $p = .016$) and self-selected topics ($r = .574$; $p < .001$). Students who indicated higher levels of confidence in their written products also showed higher levels of performance orientation. Performance orientation also correlated positively with complexity in writing, but only for self-selected topics ($r = .321$; $p = .034$), suggesting that students with higher levels of performance orientation also had higher levels of writing complexity when selecting their own topics.

Neither performance orientation nor mastery orientation for group 2 (both self-selected and assigned topics) showed any significant correlations with variables tested.

For group 3, performance orientation showed significant positive correlations with fluency ($r = .253$; $p = .028$) and grammatical complexity ($r = .313$; $p = .006$) for topics

that were assigned. Self-selected topics likewise showed positive correlations with fluency (r = .231; *p*=.048) and complexity (r = .312; *p*=.007).

For group 4, while for self-selected topics there were no significant correlations for performance orientation, assigned topics did show a significant positive correlation between performance orientation and writing complexity (r = .315; *p*=.009).

Mastery Orientation

Mastery orientation correlated positively with writing complexity for group 1 when topics were assigned (r = .302; *p*=.037), and with confidence (r = .420; *p*=.005), fluency (r = .432; *p*=.003), and complexity (r = .634; *p*<.001) when topics were self-selected. Again, self-selected topics yielded higher correlations with orientation than did assigned topics. In each case, as levels of participant mastery orientation increased, so did their fluency and complexity scores as well as their expressed level of confidence in written products.

Neither performance orientation nor mastery orientation (both self-selected and assigned topics) showed any significant correlations with variables tested for group 2.

For group 3, mastery orientation yielded significant positive correlations with both fluency and complexity for both assigned (r = .241; *p*=.036 – fluency; r = .336; *p*=.003 – complexity) and self-selected (r = .313; *p*=.007 – fluency; r = .346; *p*=.003 – complexity) topics.

Mastery orientation yielded significant positive correlations for group 4 with both fluency and complexity for both self-selected (r = .330; *p*=.008 – fluency; r = .400; *p*=.001 – complexity) and assigned (r = .413; *p*=.001 – identical statistic for both fluency and complexity) topics.

Avoidance Orientation

Group 1 avoidance orientation showed no significant correlations with assigned topics; however all observed non-significant correlations were negative (as would be expected, suggesting that as levels of avoidance orientation rise, levels of confidence and production scores fall). Avoidance orientation positively correlated with expressed confidence in written products for self-selected topics (r = .360; *p*=.016). Possible explanations for this correlation will be discussed in the following chapter.

As with group 1, group 2 avoidance orientation showed no significant correlations with any variable within assigned topics. Also like group 1, avoidance orientation in group 2 positively correlated with expressed confidence in written products for self-selected topics (r = .264; *p*=.031).

Unlike with the preceding groups, group 3 avoidance orientation yielded significant correlations. For assigned topics, avoidance orientation significantly negatively correlated with fluency (r = -.279; *p*=.036) and complexity (r = -.479; *p*<.001). For self-selected topics, there were significant negative correlations with fluency (r = -.299; *p*=.010) and complexity (r = -.402; *p*<.001).

Similar to group 3, avoidance orientation in group 4 yielded significant correlations (again, indicating that levels of avoidance orientation rise as levels of

confidence and production scores fall). For self-selected topics, there were significant negative correlations with fluency (r = -.437; p<.001) and complexity (r = -.450; p<.001). For assigned topics, avoidance orientation significantly negatively correlated with fluency (r = -.351; p=.004). There was no significant correlation with complexity, however. In addition, avoidance orientation significantly negatively correlated with students' expressed confidence in their written products (r = -.381; p=.001) for assigned topics.

Multivariate Analysis for Fluency and Complexity

A multivariate analysis of variance (MANOVA) for the group 1 across all main effects revealed that topic control significantly influences fluency (df=1; F=6.662, p=.011), but not complexity. Furthermore, interest in topic (regardless of who selected said topic) was not a significant predictor of either fluency or complexity. Additionally, confidence in writing (regardless of who selected the topic) significantly influenced writing fluency only (df=5, F=5.699, p<.001). The interaction of interest and confidence again significantly influenced only fluency in writing (df=5, F=2.355, p=.047). All statistical results of this analysis for all groups can be seen in Appendix M.

The MANOVA for group 2 revealed that topic control significantly influences fluency (df=1; F=6.228, p=.014), but not complexity. Additionally, interest in topic (regardless of who selected the topic) significantly affected complexity (df=5; F=.2.455, p=. 037), and approached significant influence with fluency. Confidence in writing (regardless of who selected the topic) did not significantly affect either fluency or

complexity. The interaction of interest and confidence did not significantly influence fluency or complexity.

Within group 3, the MANOVA revealed that topic control significantly influences fluency (df=1; F=7.191, p=.008), but not complexity. Confidence as a variable influenced complexity significantly (df=5; F=3.401, p=.006). There were no other significant main effects observed for this group.

The MANOVA for group 4 across the all main effects revealed that topic control significantly influences fluency (df=1; F=15.942, p<.001), but not complexity. No other significant main effects were observed for this group.

Analysis of Variance of Main Effects

To observe main effects individually (as influenced by topic control), univariate analyses of variance (ANOVA) were used. The analyses for each group of topic control (teacher-assigned or participant-selected) and its influence on the dependent variables, *interest in a written topic, confidence in a written product,* participants' *general fluency index,* and participants' *total complexity score* yielded the following results:

Topic Control and Interest

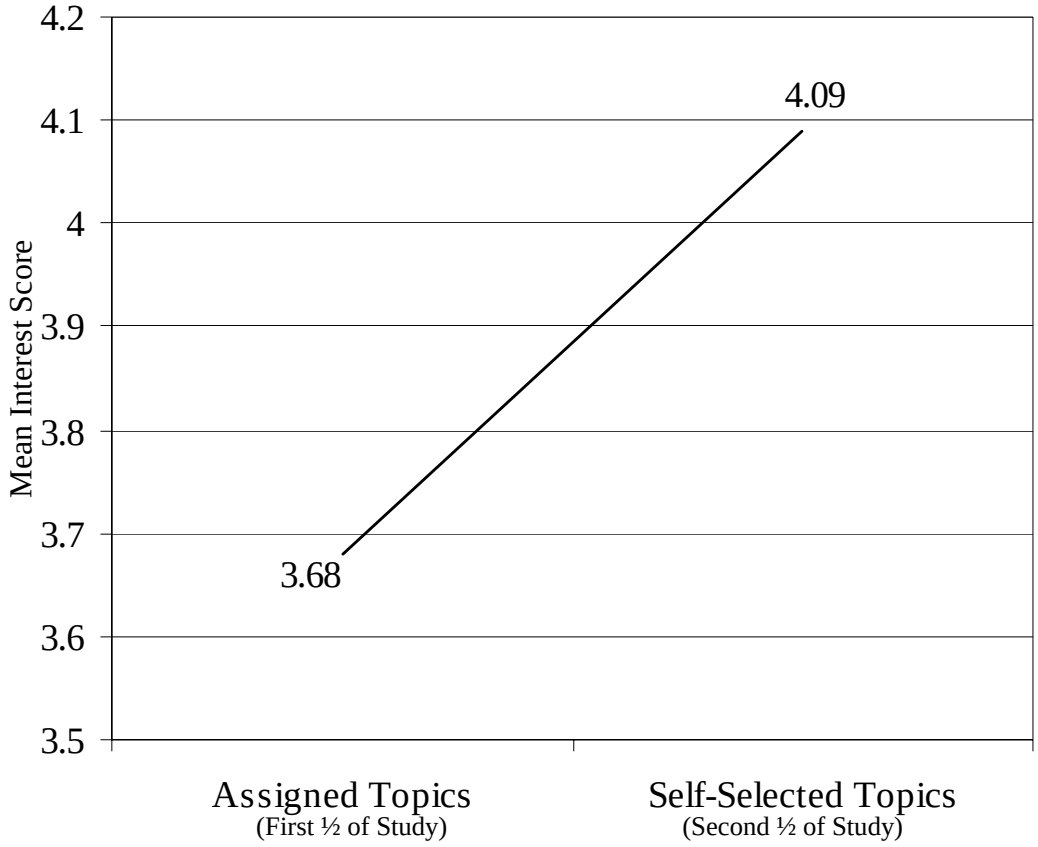
For group 1, topic control did not significantly affect students' indicated levels of interest in a topic. Mean scores between assigned topic interest and self-selected interest scores differed by .11 points on a 6-point Likert scale (as indicated by individual participants; 1=*Extremely Uninteresting*; 6=*Extremely Interesting*). The mean score for indicated interest when topics were assigned was slightly (+.09) above a score of four

(*slightly interesting*) and the mean score for indicated interest when topics were assigned was slightly below (-.02) a score of four. Full results of all group ANOVA's for this interaction can be seen in Appendix N.

Group 2 topic control did not significantly affect students' indicated levels of interest in a topic. Mean scores between assigned topic interest and self-selected interest scores differed by .09 points on the 6-point scale. Both mean scores were slightly above a score of four, *slightly interesting*.

Topic control for group 3 significantly influenced students' indicated level interest in a topic (df=1; F=4.162, p=.043). Mean scores between assigned topic interest and self-selected interest differed by .41 points on the 6-point scale. The mean score for interest was .32 points below a score of 4, *slightly interesting*, when topics were assigned, while the mean score for this same category was .41 points higher when topics were self-selected. The difference between the mean scores can be seen in Figure C.

Figure C
Group 3: Variation in Mean Scores:
Interest in a Topic
(p=.043)



For group 4, topic control only approached significance (*p*=.079) for influencing students' indicated levels of interest in a topic. Mean scores between assigned topic interest and self-selected interest scores differed by .4 points on a 6-point scale (ranging from 1, *extremely uninteresting*, to 6, *extremely interesting*). The mean score for interest was .29 points above a score of 3, *slightly uninteresting*, when topics were self-selected, and was .40 points higher when topics were assigned.

Topic Control and Confidence

Topic control (whether topics were assigned or self-selected) did not significantly affect students' indicated levels of confidence in Group 1. Mean scores between assigned topic confidence scores and self-selected confidence scores differed by .06 points on the 6-point Likert scale (again, as indicated by individual participants; (1=*Some of my worst writing in German*; 6=*Some of my best writing in German*). The mean score for confidence in a written product when topics were assigned was at 3.35 (a score of three being *somewhat poorer than average* writing), while the mean score for confidence in a written product when topics were self-selected was .06 points higher. Results for this analysis for each of the four groups can be seen in Appendix N.

Group 2 topic control did not significantly affect students' indicated levels of confidence. Mean scores between assigned topic confidence scores and self-selected confidence scores differed by .17 points on the 6-point Likert scale. The mean score for confidence when topics were self-selected was .43 points above a score of three (*somewhat poorer than average* writing), while the mean score for this category when topics were assigned was .17 points less than the mean score for self-selected topics.

Topic control modulated in group 3 did not significantly interact with students' indicated levels of confidence in their written products. Mean scores between assigned topic confidence scores and self-selected confidence scores differed by .28 points on the 6-point scale. The mean score for confidence in a written product was .10 points above a score of three, *somewhat poorer than average* writing, when topics were assigned, and was .28 points higher when topics were self-selected.

Topic control in group 4 also did not significantly affect students' indicated levels of confidence. Mean scores between assigned topic confidence scores and self-selected confidence scores differed by .04 points on the scale. The mean score for confidence in a written product were .17 points above a score of 3, *somewhat poorer than average* writing, when topics were self-selected, while this mean score rose .04 points when topics were assigned.

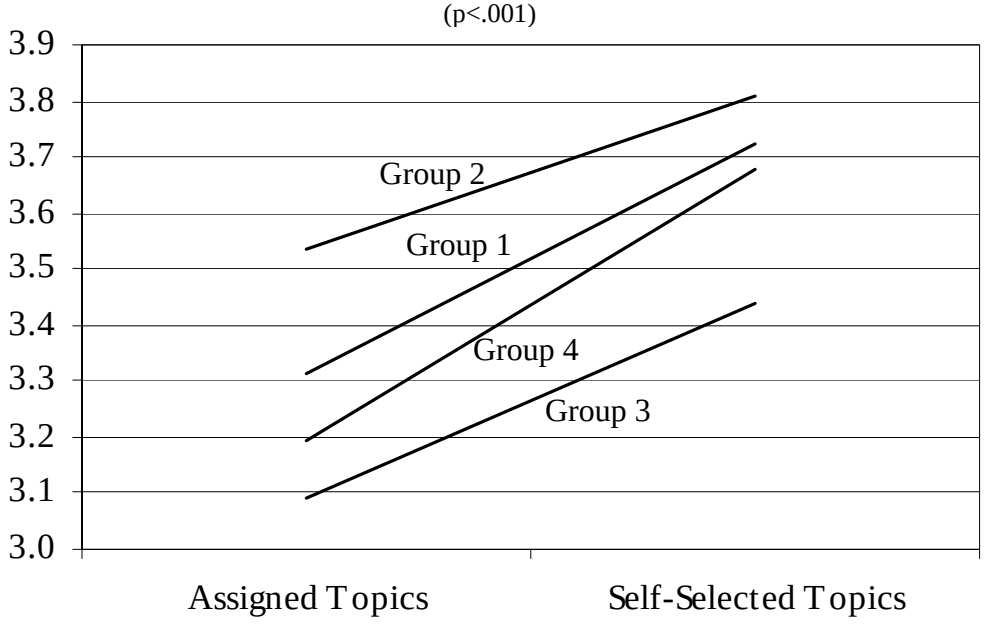
Topic Control and Writing Fluency

Writing fluency was significantly influenced in each group by topic control. In each group, participants' general fluency index was higher when writings emerged from self-selected topics. The results of the four analyses (one per group) can be seen in Table 4.3 and in Figure D.

Table 4.3
Topic Control
and the General Fluency Index
All Groups

Group	Assigned Mean	Self-Selected Mean	F	Sig.
1	3.311	3.721	12.975	.000
2	3.537	3.811	9.060	.000
3	3.092	3.439	13.704	.000
4	3.194	3.679	25.009	.000

Figure D
Variation in
General Fluency Index
Mean Scores: All Groups
(p<.001)



Topic Control and Grammatical Complexity

For each of the four groups, topic control did not significantly influence the total complexity score (the pedagogical significance of this interaction will be discussed, however, in chapter 5). Participants did show increases in their mean complexity scores over time in each group. The mean score increases for each group can be seen in Table 4.4.

Table 4.4
Increases in Mean Complexity Over Time

Group	Weeks 1-4: Assigned (Mean)	Weeks 5-8: Self-Selected (Mean)	Weeks 1-4: Self-Selected (Mean)	Weeks 5-8: Assigned (Mean)
1	12.62	15.88		
3	10.30	11.32		
2			9.23	11.7
4			13.20	13.27

Collective Findings for Group 1

Group 1 showed mean score increases for the dependent variables *confidence in written product, the general fluency index, and the total complexity score* when topic control shifted from teacher-assigned (first half of study) to participant-selected (second half of study). The fourth dependent variable, *interest in a topic* decreased as topic control modulated from teacher-assigned to participant-selected. Of these four variables, the only one to achieve statistical significance was the influence of topic control on fluency. *Interest in a topic* as a variable correlated significantly (positively) with *confidence in a written product*, both when topics were assigned and self-selected (the latter showing the stronger correlation). Interest also correlated significantly (positively) with the *general fluency index* when topics were self-selected, but did not correlate significantly when topics were teacher-assigned. *Confidence in a written product* as a variable significantly correlated positively with the *general fluency index* for both teacher-assigned and self-selected topics (the latter showing the stronger correlation), and with the total complexity score when topics were self-selected, but not when they were

assigned. The *total complexity score* significantly correlated positively with the *general fluency index* for both assigned and self-selected topics. Previous experience with a journal correlated positively with the total complexity score when topics were assigned, but not when they were self-selected; experience with a journal did not correlate with any other main effect. All results obtained from statistical analyses for group 1 can be seen in Table 4.5.

Table 4.5
Collective Findings
for Group 1

Independent	**Dependent**	Assigned (First Half of Study)	Self-Selected (Second Half of Study)	*p*
Assigned Topic (mean score ANOVA)	Interest	4.09	3.98	
(mean score ANOVA)	Confidence	3.35	3.41	
(mean score ANOVA)	Fluency	**3.31**	**3.72**	0.001
(mean score ANOVA)	Complexity	12.62	15.88	
Experience with a Journal (correlation)	With Confidence	0.094	0.062	
(correlation)	With Fluency	0.160	0.256	
(correlation)	With Complexity	**0.299***	0.220	Sig
Interest in a Topic (correlation)	With Confidence	**0.547****	**0.700****	Sig
(correlation)	With Fluency	0.188	**0.391****	Sig
(correlation)	With Complexity	0.048	0.250	
Confidence in a Written Product (correlation)	With Fluency	**0.444****	**0.545****	Sig
(correlation)	With Complexity	0.221	**0.336***	Sig
Total Complexity score (correlation)	With Fluency	**0.555****	**0.569****	Sig

* Correlation is significant at .05 level
** Correlation is significant at .01 level

Collective Findings for Group 2

Group 2 showed mean score decreases for the dependent variables *interest in a topic, confidence in written product*, and *the general fluency index* when topic control shifted from participant-selected (first half of study) to teacher-assigned (second half of study). The fourth dependent variable, *the total complexity score* increased as topic control modulated from self-selected to teacher-assigned. Of these four variables, the only one to achieve statistical significance was the influence of topic control on fluency. *Interest in a topic* as a variable correlated significantly positively with *confidence in a written product,* both when topics were self-selected and assigned, the latter of the two showing the stronger correlation. Interest also correlated significantly (positively) with the *general fluency index* when topics were both self-selected and teacher-assigned, the stronger correlation, again, coming from topics that were assigned. *Confidence in a written product* as a variable correlated positively with the *general fluency index* for teacher-assigned topics, but not for self-selected ones. *Confidence* did not correlate with the total complexity score for this group. The *total complexity score* significantly correlated positively with the *general fluency index* for both assigned and self-selected topics. Finally, previous experience with a journal correlated positively with the *general fluency index* for both assigned and self-selected topics, and with the *total complexity score* when topics were assigned but not self-selected. All results obtained from statistical analyses for group 2 can be seen in Table 4.6.

Table 4.6
Collective Findings
for Group 2

Independent	**Dependent**	Assigned (Second Half of Study)	Self-Selected (First Half of Study)	*P*
Assigned Topic (mean score ANOVA)	Interest	4.05	4.14	
(mean score ANOVA)	Confidence	3.26	3.43	
(mean score ANOVA)	Fluency	**3.54**	**3.81**	.003
(mean score ANOVA)	Complexity	11.32	10.30	
Experience with a Journal (correlation)	With Confidence	-0.085	-0.080	
(correlation)	With Fluency	**0.235***	0.206	Sig
(correlation)	With Complexity	**0.251***	0.012	Sig
Interest in a Topic (correlation)	With Confidence	**0.479****	**0.376****	Sig
(correlation)	With Fluency	**0.368****	**0.315****	Sig
(correlation)	With Complexity	0.064	0.160	
Confidence in a Written Product (correlation)	With Fluency	**0.230***	0.169	Sig
(correlation)	With Complexity	0.034	0.131	
Total Complexity score (correlation)	With Fluency	**0.512****	**0.481****	Sig

* Correlation is significant at .05 level
** Correlation is significant at .01 level

Collective Findings for Group 3

Group 3 showed mean score increases for all dependent variables studied (*interest in a topic*, *confidence in written product*, the *general fluency index*, and the *total complexity score*) when topic control shifted from teacher-assigned (first half of study) to participant-selected (second half of study). As before, the only one of these mean scores to achieve statistical significance between the two types of topic control modulation was the influence of topic control on fluency. *Interest in a topic* as a variable significantly

correlated positively with *confidence in a written product*, both when topics were self-selected and assigned, the stronger correlation of the two showing when topics were assigned. Interest did not correlate with any other variable at significant levels. *Confidence in a written product* as a variable correlated significantly positively with the *general fluency index* when topics were teacher-assigned topics, but not when they were self-selected. *Confidence* also correlated positively with the *total complexity score* for this group when topics were self-selected, but not when they were teacher-assigned. The *total complexity score* significantly correlated positively with the *general fluency index* for both assigned and self-selected topics. Finally, previous experience with a journal correlated positively with the *general fluency index* for when topics were self-selected, but not when they were teacher-assigned. There was no other significant correlation between previous experience with a journal and the dependent variables studied. All results obtained from statistical analyses for group 3 can be seen in Table 4.7.

Table 4.7
Collective Findings
for Group 3

Independent	**Dependent**	Assigned (First Half of Study)	Self-Selected (Second Half of Study)	*P*
Assigned Topic (mean score ANOVA)	Interest	**3.68**	**4.09**	.043
(mean score ANOVA)	Confidence	3.10	3.38	
(mean score ANOVA)	Fluency	**3.09**	**3.43**	.001
(mean score ANOVA)	Complexity	9.23	11.70	
Experience with a Journal (correlation)	With Confidence	0.175	-0.024	
(correlation)	With Fluency	0.037	0.206	
(correlation)	With Complexity	-0.074	-0.117	
Interest in a Topic (correlation)	With Confidence	**0.568****	**0.322****	Sig
(correlation)	With Fluency	0.045	0.065	
(correlation)	With Complexity	-0.161	0.159	
Confidence in a Written Product (correlation)	With Fluency	0.198	0.051	
(correlation)	With Complexity	0.032	**0.246***	Sig
Total Complexity score (correlation)	With Fluency	**0.560****	**0.560****	Sig

* Correlation is significant at .05 level
** Correlation is significant at .01 level

Collective Findings for Group 4

Group 4 showed mean score increases for *interest in a topic*, *confidence in written product*, and, and the *total complexity score*) when topic control shifted from participant-selected (first half of study) to teacher-assigned (second half of study). None of these changes in mean scores reached statistically significant levels. The fourth variable, the *general fluency index* decreased across the topic control modulation. Unlike the other three variables studied for group 4, the *general fluency index* mean score decrease did

reach a statistically significant level. *Interest in a topic* as a variable correlated significantly (positively) with *confidence in a written product,* when topics were assigned, but not when they were self-selected. Interest did not correlate with any other variable at significant levels. *Confidence in a written product* as a variable correlated significantly positively with the *general fluency index* when topics were teacher-assigned topics, but not when they were self-selected. *Confidence* also correlated positively with the *total complexity score* for this group when topics were teacher-assigned, but not when they were self-selected. The *total complexity score* significantly correlated positively with the *general fluency index* for both assigned and self-selected topics, the stronger correlation existing between the two when topics were assigned. Finally, previous experience with a journal correlated positively with the *general fluency index* and the *total complexity score* when topics were both assigned and self-selected. All results obtained from statistical analyses for group 4 can be seen in Table 4.8.

Table 4.8
Collective Findings
for Group 4

Independent	**Dependent**	Assigned (Second Half of Study)	Self-Selected (First Half of Study)	*p*
Assigned Topic (mean score ANOVA)	Interest	3.69	3.29	
(mean score ANOVA)	Confidence	3.21	3.17	
(mean score ANOVA)	Fluency	**3.19**	**3.67**	.001
(mean score ANOVA)	Complexity	13.27	13.20	
Experience with a Journal (correlation)	With Confidence	0.133	0.128	
(correlation)	With Fluency	**0.334****	**0.361****	Sig
(correlation)	With Complexity	**0.350****	**0.446****	Sig
Interest in a Topic (correlation)	With Confidence	**0.386****	0.167	Sig
(correlation)	With Fluency	0.142	-0.012	
(correlation)	With Complexity	0.047	-0.172	
Confidence in a Written Product (correlation)	With Fluency	**0.371****	0.054	Sig
(correlation)	With Complexity	0.228	0.139	
Total Complexity score (correlation)	With Fluency	**0.519****	**0.365****	Sig

* Correlation is significant at .05 level
** Correlation is significant at .01 level

Conclusion

In this chapter, I have described both the influence that topic control has on all the variables studied (interest in a topic, confidence in a written product, the general fluency index, and the total complexity score) as well as how those different variables intact (correlated). This section will describe all the main effect and correlations across the four groups studied.

ANOVA results. The most telling effect that topic modulation appears to have had on writing for this study occurred with fluency. For every group tested, the general fluency index was significantly influenced toward higher mean scores when topics were self-selected instead of teacher-assigned. This was the case regardless of the level of interest that participants indicated having in a topic or level of participant-indicated confidence in the overall quality of each piece of writing, and as manifest by each individual ANOVA as well as the MANOVA's, all four groups showed significant changes between the two types of topic control modulation.

Complexity in writing was also influenced by topic control. Although no group's total mean complexity score was significantly influenced by topic control, mean scores were higher in three of the four groups when topics were self-selected.

Neither confidence nor interest appeared to be overtly influenced by topic modulation. Groups 1 and 2 showed a general diminishing trend over time with regard to interest (regardless of who controlled topic), and groups 4 and 3 showed the opposite trend – only one of the four showing a significant difference between assigned and self-selected topics. Confidence in written product quality tended to favor self-selected topics (three of the four groups showed very slightly higher mean scores), but no group showed any significant differences between the two types of topic modulation.

Correlations. Prior experience with a journal showed its strongest positive correlations with the general fluency index. Three of the four groups tested showed significant positive correlations between prior experience with keeping a journal and the general fluency index. Additionally, previous journal experience showed positive

correlations with assigned-topic writings but not for self-selected-topic writings for two of the groups (taught by different teachers), while in the other two, positive correlations were found for both assigned-topic and self-selected-topic writings for one group and no correlations for the other group (taught by the same teacher – the group showing significant positive correlations for both forms of elicited writing, teacher-assigned and participant-selected, having started with self-selected topics then moving to assigned ones). Finally, of interest was the lack of any correlation between previous journal experience and participant-expressed confidence in the quality of written productions.

Interest in a topic showed its overall strongest positive correlations with *confidence in written products*. In each group, correlations were fairly strong (ranging from the weakest being r =.322, to the strongest, r =.700). One group (group 4), however, yielded no significant correlation between the two variables when writings were elicited through self-selected topics. Of further interest is the significant positive correlation between interest and the general fluency index. This correlation existed across both types of topic modulation for only one group (group 2, the only class taught by a native speaker of German). The only other group to show a significant correlation between interest and fluency was group 1 – the positive correlation only existing when topics were self-selected. Finally, interest showed no significant correlation with the total complexity score for any group regardless of who controlled the topic.

Confidence in written product quality showed an interesting correlation with the general fluency index for each group. Three of the four showed a further interesting trend, in that significant positive correlations only existed between confidence and

fluency when writings were elicited through assigned topics (in the fourth group, both types of topic control yielded strong positive correlations). Finally, confidence showed an interesting trend with three of the four groups, not by topic control modulation, but by time, each of the three groups showing no significant correlation during the first modulation of topic control, but afterward showing significant positive correlations with the second modulation of topic control. The fourth group was, again, the only group to have a native German speaker as an instructor.

The last of the effects studied for correlation was complexity and fluency, which showed strong positive correlations in each group for both types of topic control. All these effects and correlations can be seen in Table 4.9a and Table 4.9b,[6] and will be discussed in the next chapter.

[6] This table was broken into two smaller tables for mechanical reasons.

Table 4.9a
Summary of
all Main Effects
and Correlations

Independent	**Dependent**	1 Assigned	1 Self-Selected	*p*	2 Assigned	2 Self-Selected	*p*
Topic Control							
(mean score)	Interest	4.09	3.98		4.05	4.14	
(mean score)	Confidence	3.35	3.41		3.26	3.43	
(mean score)	Fluency	**3.31**	**3.72**	.000	**3.54**	**3.81**	.003
(mean score)	Complexity	12.62	15.88		11.32	10.30	
XP Journal							
(correlation)	Confidence	0.094	0.062		-0.085	-0.080	
(correlation)	Fluency	0.160	0.256		**0.235***	0.206	Sig
(correlation)	Complexity	**0.299***	.0220	Sig	**0.251***	0.012	Sig
Interest							
(correlation)	Confidence	**0.547****	**0.700****	Sig	**0.479****	**0.376****	Sig
(correlation)	Fluency	0.188	**0.391****	Sig	**0.368****	**0.315****	Sig
(correlation)	Complexity	0.048	.0250		0.064	0.160	
Confidence							
(correlation)	Fluency	**0.444****	**0.545****	Sig	**0.230***	0.169	Sig
(correlation)	Complexity	0.221	**0.336***	Sig	0.034	0.131	
Complexity							
(correlation)	Fluency	**0.555****	**0.569****	Sig	**0.512****	**0.481****	Sig

* Correlation is significant at .05 level
** Correlation is significant at .01 level

Table 4.9b
Summary of
all Main Effects
and Correlations

Independent	**Dependent**	3 Assigned	3 Self-Selected	Sig.	4 Assigned	4 Self-Selected	
Topic Control							
(mean score)	Interest	**3.68**	**4.09**	.043	3.69	3.29	
(mean score)	Confidence	3.10	3.38		3.21	3.17	
(mean score)	Fluency	**3.09**	**3.43**	.000	**3.19**	**3.67**	.000
(mean score)	Complexity	9.23	11.70		13.27	13.20	
XP Journal							
(correlation)	Confidence	0.175	-0.024		0.133	0.128	
(correlation)	Fluency	0.037	0.206		**0.334****	**0.361****	Sig
(correlation)	Complexity	-0.074	-0.117		**0.350****	**0.446****	Sig
Interest							
(correlation)	Confidence	**0.568****	**0.322****	Sig	**0.386****	0.167	
(correlation)	Fluency	0.045	0.065		0.142	-0.012	
(correlation)	Complexity	-0.161	0.159		0.047	-0.172	
Confidence							
(correlation)	Fluency	0.198	0.051		**0.371****	0.054	
(correlation)	Complexity	0.032	**0.246***	Sig	0.228	0.139	
Complexity							
(correlation)	Fluency	**0.560****	**0.560****	Sig	**0.519****	**0.365****	Sig

* Correlation is significant at .05 level
** Correlation is significant at .01 level

Chapter Five
Discussion

This study has focused on determining the influence that modulating topic selection between teacher and student has on spontaneous, timed L2 writing. The research questions guiding the study were introduced in chapter one, and the hypotheses garnered from the existing literature in chapter two. Based on existing literature and the results discussed in the previous chapter, each research question shall be answered in order together with any hypotheses made.

Factors Influencing Fluency in Writing

Hypotheses:

- L2 writers will show greater levels of fluency (i.e., will write more) with topics they feel more cognitively equipped (i.e., for which they have greater levels of background and procedural knowledge).[1] Therefore writing fluency will be greater when learners write from self-selected topics than for assigned topics.
- L2 writers will show greater levels of fluency with topics in which they have greater interest.

Topic control. The general fluency index was the most significantly influenced dependent variable in the study (as also manifest in the MANOVA, it being the only variable significantly influenced by topic control). In every group, regardless of order of topic control modulation, the general fluency index was significantly higher when writing was elicited from self-selected topics than from teacher-assigned ones. Students simply

[1] This study makes the assumption that L2 writers will self-select topics that they feel the most confident in addressing and cannot predict the topics that they will be assigned. This assumption is founded on the work of Polio & Glew (1996).

wrote more (a higher ratio of different words to total words) when they choose their own topics than when the topics were assigned to them.

This phenomenon of writing more when topics are self-selected is only a starting point. This research did not control for redundancy, circumlocution, brainstorming while writing, or pre-writing planning, all of which contribute to differing levels of produced text. In chapter 3, I described that the general fluency index is a measure of the total number of different words divided by the square root of the total words. Pedagogical application requires that students do more than simply write higher counts of different words. Fortunately, there exist strong, significant correlations[2] between fluency and grammatical complexity for each group studied (all four groups showed strong significant correlations between the total complexity score and the general fluency index for writings obtained from both assigned topics as well as from self-selected topics). There seems to be a relationship between how many different words a student uses and how complexly a student writes for German. This isn't an unusual finding, since many individual words influence German syntax (one criterion for more complex writing in this study) such as subordinate conjunctions or adverbial phrases of time, manner, or location. Such forms can cause inversion, subordination, or relativization. Therefore, as fluency (defined in this study as total different words divided by all words) increases, so does the potential for increased complexity.

This concept of more writing yielding higher levels of complexity puts forth one additional interesting pedagogical conclusion. If students' fluency is related to their

[2] Unless otherwise stated, all significant correlations indicated were positive correlations.

complexity, and topic selection can influence how much students write, then students should be allowed or even encouraged (at least occasionally) to select their own topics. Allowing students the freedom to write more appears to aid in growth in writing complexity. Fathman & Whalley (1990) argued in defense of this concept:

> …assignments …which encourage revision without feedback and writing without teacher intervention (e.g., journal writing), should be valuable components of the curriculum. They require minimal teacher time, *help the student write more fluently, and may result in student improvement*." (p. 186, italics added).

While this study suggests that complexity does seem to be fostered by increased writing output, further research is required to determine both how complexity is increased (i.e., what target constructions and forms are improved) and if pedagogical intervention (i.e., guidance of target forms) can be of additional help to language learners during this process. Additionally, whereas German syntax is influenced by the presence of certain lexical units, this is not the case with all languages. Therefore, researchers replicating this study should evaluate the influence of fluency on grammatical complexity as it applies to other languages.

Interest and confidence. Two of the four groups showed significant correlations between interest/confidence and the general fluency index. Interest for group 1 correlated with fluency when students selected their own topics, and confidence for the group significantly correlated with fluency for both assigned and self-selected topics. For group 2, the inverse is true. Interest correlated significantly with fluency for group regardless of who selected the topic, and confidence correlated with fluency when topics were assigned.

There was no significant correlation observed between interest and fluency for groups 3 and 4 (each of which were taught by the same teacher). Additionally group 4 showed a significant correlation between confidence and fluency when students wrote on topics assigned by the teacher, and group 3 yielded a correlation which approached significance between confidence and fluency for assigned topics.

It is interesting to observe that the two groups taught by the same teacher showed no correlations between interest and fluency where the other two (taught by different teachers) significantly correlated. This finding in the groups taught by the same teacher suggests that individual teacher differences (such as teacher approach to the task, Brown, 1994; Palmer, 1998) may have been sufficient to influence interest. Support for this idea can be found not only by the non-significant correlations of groups 3 and 4 (both taught by the same teacher), but also by results obtained from the MANOVA for interest as a variable influencing writing fluency. Interest did significantly influence writing fluency for group 2, however for complexity and approached significance for fluency. This group, as just mentioned, was the only group to have a significant correlation between interest and fluency for both types of topic control modulation. This was the only group of the four that was taught by a native German. Research and existing literature suggest that the way material handled by an instructor does cause change. Paris & Turner (1994), for example, suggested that since motivation is not static (intrinsic and extrinsic motivation), it can be influenced. Teacher enthusiasm (or lack thereof) for subject material is one such influence on the level of motivation that students could develop for a language task. (Brown, 1994; Palmer, 1988). In chapter 2, I described how, interest in a

task influences how carefully, how cognitively complexly, and how thoroughly a learner addresses that task (Sternglass, 1980; Gardner, 2001). Therefore, there is a progression wherein the teacher plays a vital role on student interest, and ultimately performance. This trend of teacher differences for groups 3 and 4 will be repeated again as an influence on interest and confidence. Although the present study did not control for teacher variation in approaches to writing, the results presented offer evidence to suggest that teachers do influence writing fluency – an influence which future research should address.

Paris & Turner (1994) argued, "When students attribute positive values and feeling to particular courses of action, they are likely to…pursue them vigorously" (p. 223). Larsen-Freeman & Strom (1977) suggested that affective factors such as degree of interest could lead to an increased willingness on the participants' part to be more expressive. These arguments seem to be supported by groups 1 and 2 with regard to interest, where participants who found topics to be of greater interest showed higher levels of fluency in their writings.

Prior experience with writing in a journal. Respecting prior journal experience and fluency, each group fell along a continuum: Group 1 showed no significant correlation for either self-selected or assigned topics. Group 3 showed a significant correlation between prior journal experience and fluency when topics were self-selected. Group 2 showed a correlation that approached significance with fluency when students selected their own topics, and a significant correlation with fluency when topics were teacher-assigned. Finally, group 4 showed a significant correlation with the general

fluency index for both self-selected topics and assigned topics. There were no observable patterns from these results from which to draw conclusions about how previous experience with writing in a journal correlates with fluency in writing in this study. Pedagogically, it is helpful to know that previous experience with similar types of writing does not place students at either an advantage or a disadvantage (globally speaking) when engaging in the kinds of free-writing that this study examined. Language-learning writers should be on an equal footing regarding fluency in writing despite previous experience. This knowledge can help teachers who see differences in writing that are not merely due to L2 competence, such as L1 writing skill (Zamel, 1983; Krapels, 1990).

Orientation.[3] Mastery-orientation, introduced in chapter 2, is the underlying drive learners may possess to learn a topic successfully and completely (i.e., to *master* the topic or skill). For each group, as levels of participant mastery orientation increased, so did mean scores of fluency. This is in line with Elliot and Church (1997), who determined their orientation inventory to be able to predict with statistical significance a learner's goal orientation and relative distance from ability of performance of learning tasks. They described learners who are mastery oriented as being willing to meet language challenges (even more difficult ones) with determination and vigor. One possible manifestation of this might be increased levels of writing (writing more). Groups 1, 3, and 4 did, in fact do this, group 1 showing a significant correlation between mastery orientation and fluency when topics were self-selected, and for both self-selected and assigned topics for

[3] The orientation definitions offered for *mastery-, performance-, and avoidance orientation* are all from Elliot & Church, 1997)

the latter two groups. Group 2 showed no significant correlations between the two. This last group was also the only one to show no correlations for any variable either with mastery or performance orientation.

Group 2 was the only group taught by a native German. As I have mentioned earlier in this chapter, although this study did not look at individual teacher differences as a variable, there is literature to suggest such. Future research should consider differences that can arise from native versus non-native users of a language and how those differences might be manifested.

Performance orientation is the drive for students to perform required tasks to "appear" knowledgeable or competent for the teacher, the student's peers or family, or any combination of these (Ames & Archer, 1988). The only group to show a correlation between performance orientation and fluency was group 3, which showed the correlation for both writings arising from assigned and self-selected topics. In each group, by a large margin, individuals were mastery oriented. Performance-oriented participants totaled the fewest in number in all four groups. These low numbers might account for the lack of correlation with fluency. No other pattern can be extrapolated from the data to form any logical conclusions.[4]

Avoidance-orientation, as described by Elliot & Church (1997), is manifest in learners as a tendency to avoid performance either due to (participants only perform required tasks to a minimum level because the content of what they are learning is either too stressful or perceived as too difficult). Most correlations (significant and non-

[4] Teacher influence was not considered, since only one of the two groups taught by the same teacher showed a correlation.

significant) for all four groups were negative, as would be expected; negative correlations suggest that as levels of avoidance orientation rise, levels of confidence and production scores (fluency and complexity) fall. Groups 3 and 4 yielded significant negative correlations between avoidance orientation and fluency for both self-selected and assigned topics. The influence of topic control was insufficient to overcome participants' diminished fluency when those participants were avoidance-oriented. The other two groups did not show significant correlations between avoidance orientation and fluency. Considering that groups 1 and 2 had consistently higher mean fluency scores, this isn't surprising.

Factors Influencing Complexity in Writing

Hypotheses

- L2 writers will take greater risks with grammatical complexity when writing about topics for which they feel higher levels of content knowledge.[5] Therefore L2 writers will show higher levels of grammatical complexity for topics which they select than for ones they are assigned.[6]
- L2 writers will show higher levels of grammatical complexity with topics in which they have greater interest.

Topic control. For each group, the total complexity mean score[7] increased over time (though gains were not statistically significant). Each group showed mean score increases in the second four sets of writing from the first four sets regardless of the order of topic control modulation. It is reasonable to assume that there will be language growth

[5] Skehan and Foster (1999a)
[6] There is the assumption here that topics self-selected will be more familiar than the topics assigned. This assumption is underpinned by Sternglass (1980), who argued that students often have to 'guess' what the teacher wants from them when they write.
[7] See the end of the previous chapter ("Notes" section) for a brief description of the total complexity score.

in students over the course of a semester (Casanave, 1994). It is logical to conclude that students' use of the language will also grow over the course of a semester as participants' skill with and knowledge of the language increase. However, the growth over time for each group shows a very interesting pattern: For groups 1 and 3 (groups that were assigned topics first then self-selected their own topics second) the gains made in mean group scores on the total complexity score were higher than those for groups 2 and 4 (groups that self-selected their own topics first and were assigned topics second).[8] The actual differences in gains made over time for each group are shown in Table 5.1.

Table 5.1
Gains Over Time
to the Total Complexity Score

Group	Order of Treatment	Topic Control	Mean Score	Change Over Time
1	1 2	Assigned Self-Selected	12.62 15.88	+3.26
3	1 2	Assigned Self-Selected	9.23 11.70	+2.47
2	1 2	Self-Selected Assigned	10.30 11.32	+1.02
4	1 2	Self-Selected Assigned	13.20 13.27	+0.07

Reid (1990) found that students' grammatical complexity was unaffected by either of two writing tasks (each with assigned prompts) when writing was time-constrained and no time was given for revision. She did not consider self-selected topics

[8] As I mentioned in chapter three, the counter-balanced design of this study between classes that are taught by different teachers introduces a potential confound to the study. To nullify the effects of this confound, I chose not to statistically compare between-group results. Even without establishing statistical significance, it is clear from a visual comparison that order of treatment did influence the complexity of students' written products in this study.

in her research design. Sandler (1987) and Sternglass (1980) both argued that when language learners (under constraint of timed writing) assume that their writing will be graded, they "…revert to using the simplistic constructions already learned" (Sandler, p. 316). Self-selecting topics might nullify this reservation in writers. Although these changes over time were not statistically significant, pedagogical significance suggests allowing language learners the opportunity to explore topic and the complexities of the language without fear of retribution. Such non-constraint on writing encourages experimentation, which appears to lead (as observed in this study) to more complex writing

Interest and confidence. The MANOVA analysis showed that complexity was not influenced by interest for three of the four groups. [9] The fourth group (group 2) yielded a significant influence of interest on complexity. Polio & Glew (1996) observed that interest in a topic was an initial motivation for selecting one topic from a list of several, but as the linguistic demands of the task rose, participants resorted to other topics for which they felt they possessed greater levels of content and procedural knowledge (i.e., familiarity with the writing task; Faerch & Kasper, 1989). If group 2 participants were the only ones to possess sufficient amounts of such knowledge, then it is understandable why that group was the only one to show such influence.

Interest did not correlate with complexity in any group regardless of who selected the topic. In answering question three regarding the influence of interest on complexity, I cited Polio & Glew (1996) who found that (according to their students) background

[9] Additionally, interest and complexity did not significantly correlate for any of the four groups.

knowledge and familiarity with task (Friedlander, 1990) were of greater importance to writing complexity than interest. Jones & Tetroe (1987), Friedlander (1990), Smith (1994), and Skehan & Foster (1999a) all concur that writing complexity is augmented by background and content knowledge in the writing topic.

Since complexity seems to develop independently from interest for most of the groups, teachers, in addressing writing complexity, should consider additional factors which might have greater influence on complexity, such as encouraging risk-taking without penalty for mistakes (Gardner & Lambert, 1959; Semke, 1984) and fostering confidence in writing (Paris & Turner 1994; Gardner, 2001). One way to accomplish this is through writing activities that engage the writer on a personal level (Palmer, 1988), allowing them to write about what is of greatest interest or about that for which they have strong opinions or ideas, or for which they have stronger background knowledge (Jones & Tetroe, 1987; Polio & Glew, 1996; Skehan & Foster, 1999a).

Confidence in written product (regardless of who selected the topic) significantly influenced writing fluency for group 1, but not complexity, whereas in group 3 the reverse was found (confidence influencing complexity but not fluency). This was not the case with groups 2 and 4, where confidence in written product (regardless of who selected the topic) did not significantly affect either fluency or complexity. It is interesting to note that the two groups which started with assigned topics and finished with self-selected ones showed a significant influence for confidence with either fluency or complexity, but the two groups which started the study with self-selected topics did not. Considering this pattern mirrors the one found with gains to complexity over time

(see *topic control and grammatical complexity* above), it seems likely that order of treatment has a definite influence on improvement over time. In answering the question of topic control influencing complexity in writing, I described how groups which selected their own topics during the second half of the study showed higher increases in their total complexity scores than did the other two groups, which were assigned topics during the second half of the study. As I will show in the section of this chapter labeled *confidence* under question four (next section) the correlations between confidence and fluency seemed to strengthen over time (with the exception of one group, which showed no statistically significant correlations). Moreover, the correlations between confidence and complexity correlate significantly for those two groups (1 and 3) only. One pedagogical conclusion that could be reached from these results is notion of increased willingness on the part of participants who select their own topics to use more complex constructions more frequently. Perhaps these participants feel more confident in their use, (confidence significantly correlated with complexity – see question four below, subsection *confidence*). Since participants in this study showed more confidence in their writing when selecting their own topics, as students become more proficient with their languages of study, they should be allowed more control over their own writing, including selection of topics.

Groups 1 and 3 showed significant correlations between confidence and the total complexity score, but only when the writings came from self-selected topics. No significant correlation for confidence and complexity was observed when writings came from assigned topics. In group 2 and 4, there was no significant correlation between

confidence in a written product and the total complexity score for either self-selected or assigned topics, though confidence did approach significance with complexity for assigned topics in group 4.

Earlier in this section I illustrated the effect that order of treatment can have on complexity. Mean complexity scores increased more over time for the groups that wrote on self-selected topics during the second half of the study than for the groups that started with self-selected topics then moved to assigned ones. That there were significant correlations between confidence and complexity for these same two groups only serves to strengthen the argument that order of treatment did influence writing output.

This particular correlation suggests that language learners show a more reliable trend of confidence in writing that actually does increase in complexity. Pajares & Johnson (1996) and Pajares & Valiante (1997) found that writers' expressed levels of confidence in their own writing accurately predicted their holistic writing performance on timed writing. Parajes & Johnson (1996) suggested that writers "judgments of self-efficacy…mediate the effect of other influences [on writing performance]" (p. 163). Additionally, self-efficacy, they argued, influences the choices writers make about the amount of effort expended on a project. Thus, when students in the present study were allowed to select (or at least have a say in) topics for writing (Polio & Glew, 1996), the underlying deterrent of 'guessing what the teacher wants' (Sternglass, 1980; Lucas & Jurich, 1990) was eliminated, and participants were more free to use the language as it fit their own goals. This, in turn, allowed them greater freedom with the complexity of their language, not being "…'boxed-in' by what they perceived to be the constraints of the

tasks" (Sternglass, 1988, p. 131). As their writing complexity increased, so did their levels of confidence.

As I mentioned in the section on fluency, all four groups showed significant correlations between the total complexity score and the general fluency index for writings obtained from both assigned topics as well as from self-selected topics. In that section, I illustrated the relationship between individual lexical units and syntactic complexity in German. Future research should consider complexity in languages where syntax is less flexible, to determine if there is a relationship between increased amounts of writing and total complexity.

Prior experience with writing in a journal. The results of the correlations between previous experience with journal writing and complexity in writing were rather sporadic. Both groups 1 and 2 showed that previous experience with keeping a journal did correlate with the total complexity score, this being when topics were assigned by the teacher. Group 4 showed correlations between experience with a journal and the total complexity score for both self-selected and assigned topics, writing complexity showing a slightly stronger correlation with self-selected topics than with assigned ones, while group 3 (taught by the same teacher as group 4) showed no significant correlation between the two whatsoever. From this, it seems that although journal experience does correlate with writing complexity, it cannot be mapped by the results of this study.

Orientation. As with fluency, there was a significant correlation between mastery orientation and writing complexity. For each group, excepting group 2, as levels of participant mastery orientation increased, so did mean scores of complexity. Mastery orientation, as described by Ames & Archer (1988), is manifested in learners by attempting more-challenging tasks. One such manifestation of a more-challenging tasks would logically be more syntactically complex writing. In group 1, mastery orientation correlated significantly with writing complexity when topics were assigned, and in groups 4 and 3 both when topics were assigned and self-selected. This was not the case for group 2, which showed no significant correlation between mastery orientation and complexity.

In addressing mastery orientation and fluency in writing, I pointed out that group 2 was the only group to show no significant correlations whatsoever with either mastery or performance orientation. This is also the case for the two types of orientation and complexity. Mean complexity scores for self-selected writing were the lowest of all groups' scores, and mean scores for assigned topics were second-lowest. Additionally, this group was the only group to be taught by a native German. Future research should consider ways that syntactic and grammatical exploration/experimentation on the part of the learners are valued and reacted to by native and non-native language teachers.

Performance orientation and complexity in writing correlated with more consistency than did performance orientation and fluency. Again, all groups except 2

showed significant correlations between the two[10]. Group 1 performance orientation correlated positively with complexity in writing, but only for self-selected topics, suggesting that students with higher levels of performance orientation also had higher levels of writing complexity when selecting their own topics. For group 4, conversely, while there was no significant correlation between performance orientation and complexity for self-selected topics, assigned topics did yield a significant correlation between the two. Both of these groups showed correlation in the second half of the study only. This is, again, in line with the assumption that there will be natural improvement over the course of a semester. Group 3 showed correlations between performance orientation and grammatical complexity for both assigned and self-selected topics. The strength of the two correlations was virtually identical (r =.313 for assigned topics, r =.312 for self-selected topics). Since there was no change over time to the correlation between performance orientation and complexity, for this group like with the other two groups, no pattern or conclusion can be made about the occurrence.

Avoidance orientation. Groups 3 and 4 showed significant negative correlations between avoidance and complexity. Group 3 yielded negative correlations for both for both self-selected and assigned topics, while group 4 yielded a negative correlation between the two only when topics were self-selected (during the first half of the study). Such correlations show the expected result of lesser confidence in one's own writing and, ultimately, the diminished production that can occur when a learner becomes aware that his product it is to be scrutinized by an authority, such as an instructor (Sternglass, 1980,

[10] In addressing influences on writing fluency, I described reasons for group 2's lack of influence of goal orientation on performance.

1988; Lucas & Jurich, 1990; Polio & Glew, 1996). While Elliot & Church (1997) argued that avoidance orientation would correlate with diminished production (as in the case of groups 3 and 4), they did not mention if or how teacher intervention can influence production to aid production (thus reducing the negative correlation between avoidance anxiety and complex writing). Future research should address this topic.

Influences on Interest in a Topic[11]

For groups 1 and 2, topic control did not significantly affect students' indicated levels of interest in a topic. Group 3 interest in a topic was significantly influenced by topic control, mean scores differing by .41 points on the 6-point scale (1=*Extremely Uninteresting*; 6=*Extremely Interesting*), the number of participants totaling 21. Group 4 approached significance, mean scores differing by .40 points on the 6-point scale, the number of participants totaling 18.

Although statistical significance was obtained for one group (3) for interest, there was less than one-half of one interest point of total variation in interest within the group. From a research standpoint, there is insufficient evidence to support the idea that topic control modulation influences participant interest in a topic.

In each of these final two groups (groups 3 and 4) where significant influence was observed and approached, higher levels of interest were indicated during the second modulation of topic control (self-selected and teacher-assigned respectively). As was mentioned in chapter three the first number of this code conveys which of three teachers

[11] Although topic control did not statistically influence every group's interest or confidence, from the information presented here, *topics themselves* do appear to influence levels of interest and confidence in written products. Future research should pursue this idea further to determine categories of topics which are the most influential on interest and confidence.

instructed the course, meaning that both of these classes were taught by the same teacher. There was no similar pattern with the other two groups (1 and 2 respectively) – which showed a general diminishing of interest over time (from modulation one to modulation two).

In chapter one, I addressed the need for meaningful engagement in learning and application of new grammar/material (Hadley, 2001; Brown, 1994). Fostering successful interest toward writing includes appealing to the target group through a variety of different learning styles (Oxford, 1990). In this study interest was not significantly influenced by either allowing participants to select their own topics for writing or by assigning them topics. Pedagogy in line with this finding suggests allowing students the experience of both types of topic selection. Additionally, future research should consider the way that topics are selected and assigned,[12] and include the effects that teacher enthusiasm toward and degree of treatment (discussion, pre- and post-writing activities, for example) have on interest levels, and ultimately on writing quality (Gardner, 2001).

Interest itself does vary with each experience, and, as expected, each topic in this study yielded different mean interest scores. As mentioned in chapter three, these topics were assigned to participants in the study since they were in line with reading texts that occurred throughout the semester and were all topics to which students could relate and would have content knowledge (Smith, 1994).

From these assigned topics, the fourth topic, *leisure*, had the highest mean interest scores for two of the four groups (2 and 4), and was in a virtual tie for first place with the

[12] Topics were spontaneously selected in this study and given without any pre-writing. Future studies might consider planning time (Zamel, 1983; Foster & Skehan, 1996).

third group (group 1), differing with the mean score of the second topic by .01 points. The second topic, *differences between men and women,* had the lowest mean score of the four, but the scores were not uniform across the groups. The mean interest scores for each group and the marginal mean for each topic can be seen in Appendix O.

Topics that resulted from the four weeks of self-selected treatment were greatly varied. Participants created and wrote about 145 different topics (these topics can be seen in Appendix P). For simplification purposes, these topics were categorized more generally into 15 global topics. The majority of entries written were narratives of a recent personal event (45 occurrences). Slightly behind, with 41 entries, was the topic of upcoming plans, either for a vacation, the weekend, or other special event. Each major topic and the total number entries that occurred with it can be seen in Table 5.2.

Table 5.2
Global Categories
of Self-Selected Topics

Category	Occurrences	Category	Occurrences
Recent Personal Event	45	Commentary	9
Plans	41	Sports	8
Personal Interest	34	Food	6
Rambling	30	Misc	6
Problem	28	Aspirations	5
School	25	Living	3
Introduction	15	Work	3
Weather/Day Report	10		

Mean interest scores for each of these categories suggest that students found the topic of making introductions (either or self, family, or friends) to be the most interesting (mean score = 4.33 on the scale of 1=*Extremely Uninteresting* to 6=*Extremely Interesting*). Introductions as a category, however, had only 15 occurrences. The mean

interest results of each of these global categories can be seen in Appendix Q. The only topic to score high in total occurrences and mean interest was the topic of personal interests. The higher mean interest scores should not be surprising if a writer is describing an item or event of greater interest. The reverse also seemed to be true: At the opposite end of the interest scale was the category *commentary*. In every case but one, the topics of the commentaries were expressions of dissatisfaction (for example, *why I dislike school*, or *poor conditions of a classroom*, and ironically, *why I don't like writing from topics I have to select myself*).

Of additional interest is also higher-frequency category of *rambling*. This type of writing seemed to occur when a participant had no topic in mind or hoped to develop one through writing (a kind of brainstorming through writing). Such writing received the second-lowest mean interest score. From a practical standpoint it stands to reason that interest in a topic requires that a topic first exists. In the case of brainstorming, the participant writes with the goal of identifying a topic.

Although in this study, interest was only statistically influenced by topic selection control in one group, future research should address additional topics and catalogue the interest levels invested in each on the part of the learner. In the case of spontaneous, timed writing in the foreign language, the influence of pre-writing/priming activities should be considered. Additionally, in the case of self-selected topics, time for selecting a topic might be considered.

Influences on Confidence

Topic control. Topic control (whether topics were assigned or self-selected) did not significantly affect students' indicated levels of confidence in any group, though it approached significance for group 3, which had the maximum variance (.28 points) on a six point scale (1=*Some of my worst writing in German*; 6=*Some of my best writing in German*). Three of the four groups had higher mean scores for writings emerging from self-selected topics (groups 1, 2, and 3). Group 4, the one group which showed a higher mean score for writings emerging from assigned-topics, showed the smallest variation between mean scores for confidence, .04 points on the 6 point scale. As with interest, mean score variation for confidence between the two topic control modulations was never more than one-half of one point.

From a pedagogical standpoint, the majority of participants indicated slightly, non-significantly higher levels of confidence for their writings when writing on topics they self-selected. As has been shown from chapter four, each group showed significant correlations between confidence and fluency and all but one group showed significant correlations between confidence and complexity. There were, in fact, more such significant correlations between confidence and fluency/complexity than there were between interest and fluency/complexity. For this reason, teachers should consider allowing students more input into selection of their writing assignments. Polio & Glew (1996) advocated this approach, suggesting (particularly with timed writing) that it affords participants the chance to "display their best writing" (p. 37). Bandura (1986) argued that confidence in one's own ability is intrinsically linked with attempting a given

task. Therefore, to allow a learner the most thorough treatment of a topic, a teacher should afford his students the chance to select topics in which they feel the most confidence.

From the perspective of change over time, there is a second way to evaluate how confidence manifested itself: Marginal mean confidence in product quality for all four groups when topics were assigned showed an increase over time (though no one group showed statistically significant increases over time)[13]. As I mentioned, the mean scores and marginal means for each of the four assigned topics by group can also be seen in Appendix O. If a language learner's overall use of the L2 language increases over the course of a semester (every teacher's hope), and as the learner's skill/knowledge of the language increases, perhaps there will be a similar increase in confidence in his own language abilities.

Of the four topics, mean confidence for all four groups showed that *leisure* yielded the highest levels of confidence. When the groups are teased apart, this trend no longer holds true. Groups 3 and 4 both showed highest levels of confidence (an identical mean of 3.64 on the 6-point scale) for topic 3, *relationships*, while group 2 showed its highest mean levels of confidence in written products with the second topic *differences between men and women*. Like *interest in a topic*, the topic of *confidence in a written product* shows great similarities for groups 3 and 4 (taught by the same teacher). There is little research on teacher influences and self-evaluations of written products, and that groups taught by the same teacher have shown similar trends for interest in a topic and

[13] Of the four groups, only the first (group 1) showed continual increases in confidence over time for of the four topics.

confidence in writing opens a doorway for future research.

At the low end of confidence, all four groups indicated their lowest levels in the first topic, *life after school is finished*. From the results present, it is not apparent whether the order of the topics themselves is less, of equal, or more influence on confidence as the topics themselves are. Future research should consider modulation of order of topics to determine whether topics themselves are the main influence on confidence.

When topics were self-selected, mean confidence levels in a written product were highest among the most infrequent of topics. The category of day-to-day living (which had a mean confidence score of 4 on the 6-point confidence scale (1=*Some of my Worst Writing in German*; 6=*Some of my Best Writing in German*) only occurred in three entries during the study. The first topic to receive a somewhat higher confidence mean score and be a more frequent category was reporting on upcoming plans (either for a special event, a weekend, or break in school). The category of *plans* was the second-highest frequently occurring. The mean confidence in written product results of each of these global categories can also be seen in Appendix Q.

Like mean interest scores, the categories which received the lowest mean confidence scores were *rambling* (no specific topic) and *commentary* (see the previous heading, labeled *topic control and interest* for a description of the categories *rambling* and *commentary*).

Interest. Group 1 showed strong correlations between interest and confidence for both self-selected and assigned topics, self-selected topical writing showing the stronger correlation of the two. Group 2 was very much the same, the correlation between the two, however, being slightly stronger for assigned topics than for self-selected ones. Group 4 only showed a significant correlation between indicated interest level in a topic and confidence when students wrote on assigned topics, and group 3 was much the same as group 2, the stronger significant correlation between the two occurring when topics were assigned.

In every group, interest correlated significantly with confidence in a written product when the topics were teacher-assigned, and in three of the four groups when topics were self-selected. In chapter 2, I referred to Gardner's socio-educational model of language acquisition (Gardner & Lambert 1959), and his argument that true integrated motivation is achieved when a task is interesting or enjoyable (Gardner 2001). Sternglass (1980) observed that students undertaking "energizing" tasks (p. 7) showed more reflection in their work. As students completed writing tasks (whether from assigned or self-selected topics), this idea of greater reflection may, indeed, have led them to more carefully consider both *what* and *how* they were writing. This awareness seems to be evidenced in higher levels of confidence in written products.

Orientation. Performance orientation for group 1 showed significant positive correlations with participants' expressed confidence in written productions for both assigned and self-selected topics. That is to say, participants in this study who indicated higher levels of confidence in their written products also showed higher levels of

performance orientation. No other group showed similar correlations for this pairing. Group 1 had the highest mean complexity score for self-selected topics and the second highest for assigned ones, and the highest mean performance orientation scores from the Elliot & Church (1997) inventory of all groups. The same pattern was illustrated for group 1 with mastery orientation (mastery orientation correlated significantly with confidence when topics were self-selected).

Avoidance orientation yielded one very unusual finding common to both groups 1 and 2. For those participants who indicated higher levels of avoidance orientation of the Elliot-Church (1997) inventory, there was a significant positive (not negative) correlation between confidence in written products for self-selected topics and avoidance. That is to say, for these two groups, when topics were self-selected, confidence in one's own writing increased as avoidance tendencies increased. One possible explanation for this correlation is that students with higher levels of avoidance orientation felt more confidence with writings of their own selection. This is supported by the fact that groups 1 and 2 both showed higher mean levels of confidence in written products when they were self-selected than when they were assigned (a trait shared by group 3). Addressing the influence of self-efficacy in writing, Pajares & Johnson (1996) stated that, "… self-efficacy should continue to predict related academic performances when the effects of anxiety are controlled…" (p. 165). This argument suggests the need for teacher intervention. Again and again, there has been a division between groups 1 and 2 (taught by different teachers) and groups 3 and 4 (taught by the same teacher). It is possible that

effects of avoidance orientation have been reduced (in the case of group 2 for all types of goal orientation) in those groups where the positive correlations existed.

Summary of Research Questions and Their Answers

Although the answers given to each of these questions are in relation to the present research and the data collected therefore, these questions can and should serve as individual starting points of future research to determine the generalizability of the each result.

Question #1: *Does topic-selection control (teacher-selected topics versus student-selected topics) influence a participant's expressed interest level in a topic or a participant's self-assessment of the quality of a piece of writing on the said topic (referred to as confidence in a written product)?*

Topic did not statistically influence every group's interest or confidence. However, from the results presented, each topic had its own individual influence on interest and confidence in written products. Future research should pursue this idea further to determine categories of topics which are the most influential on interest and confidence.

Question #2: *Does topic-selection control (teacher-selected topics versus student-selected topics) influence a participant's fluency in writing (as measured with a general fluency index) or a participant's grammatical complexity in writing (as measured with a general complexity score)?*

Fluency in writing was significantly influenced by topic control in each group. The hypothesis, being supported by the research, offers a suggestion as to why fluency was increased. Interest did correlate with fluency with two of the four groups, but fluency was not significantly influenced by interest. The hypothesis was not supported by the data presented. Although the increases to complexity occurred over time instead of by

topic control, those increases over time were greater when augmented by order – that is to say, when participants wrote on self-selected topics later (adding the effect to natural improvement over time), their grammatical complexity was increased. The explanation for the improvement offered in the hypothesis, that greater risk-taking will occur, is not supported or refuted. Additional research is needed to account for the increases in complexity observed in this study.

Question #3: *Do interest level, confidence in a written product, or a combination of both influence participants' fluency and/or grammatical complexity?*

As mentioned, although interest did correlate with fluency with two of the four groups, fluency was not significantly influenced by interest. Grammatical complexity in writing did not correlate with interest in topics for any group, and as only statistically influenced in one of the four groups.

As for confidence in writing, there seemed to be an exchange between order of treatment and the influence that confidence had on writing. For each of the groups that began the study with assigned topics and finished with self-selected ones, there was a significant influence of confidence which expressed itself in fluency in group 1 and in complexity in group 3.

Question #4: *Is there any correlation between any of the variables previously listed (interest, confidence in a piece of writing, fluency, or complexity) for each type of topic control modulation (self-selected and teacher-assigned)?*

Interest in topics consistently correlated with participant-indicated confidence in written topics. Although the MANOVA did not show a significant influence of interest on confidence for the four groups, there was a relationship between the two. Interest did not

correlate with fluency except for one group. As just mentioned, grammatical complexity in writing did not correlate with interest in topics for any group, and as only statistically influenced in one of the four groups.

Confidence in a written product consistently correlated with writing fluency for assigned topics in all groups. Shell, Murphy, & Bruning (1989) had similarly determined the self-efficacy (confidence in one's own ability) of participants who wrote significantly correlated with their holistic performance on a timed essay. The present study has extended the finding to writing in a foreign language.[14]

Confidence also correlated with grammatical complexity in writing during the second half of the data collection. This correlation existed for three of the four groups, and was not bound to control of topics, but seemed to be related to the improvement that participants experienced in their writing over the course of the semester.

Complexity as a variable significantly correlated with fluency for all groups across both types of topic control. I mentioned how this wasn't an unusual finding due to the various possible types of syntactic changes that can occur when certain lexical items are introduced into a clause.

Question #5: *Does previous experience with keeping a journal (either in the L1 or another language) correlate with confidence in a piece of writing, writing fluency, or grammatical complexity?*

Many authors have cited familiarity with a task (sometimes referred to as procedural knowledge, Faerch & Kasper, 1989) and background or content knowledge as being among the most important contributors to successful L2 writing (Polio & Glew, 1996;

[14] Shell, Murphy & Bruning assessed the writing abilities of L1 writers only (not L2 writers).

Friedlander, 1990; Skehan & Foster, 1999a). Previous experience writing in a journal correlated significantly with fluency in groups where self-selected topics were used during the first half of the study and were assigned during the second half of the study. With respect to this relationship, topic control seemed not to be as important as *order* of treatment was.

Previous experience with a journal correlated with grammatical complexity sporadically. Two of the groups showed a correlation when topics were assigned, one showed correlations regardless of who controlled topic selection, and the final group showed no correlation between prior experience and complexity whatsoever. Replication of this study might help to decipher a trend for this relationship. The present study has shown that there is a relationship, but additional research should aim to define more precisely what that relationship is.

There was no correlation of any kind between previous experience with writing in a journal and confidence in writing for either type of topic selection control. Typically, journals are written without time-constraint and without a specified audience. Audience awareness may, in fact, have been key to the lack of correlation between confidence in writing and previous experience observed in this study (Rorschach, 1986; Sandler, 1987).

Question #6: *Is there a correlation between a given participant's expressed goal orientation (mastery / performance / avoidance) and his or her performance relative to those variables previously listed (interest level, confidence in a piece of writing, fluency, or complexity)?*

Goal orientation led to the most sporadic of results in this study. Mastery orientation was the only variable to show a consistent correlation. It occurred most globally with

complexity (three of the four groups showed correlations regardless of who controlled topic selection), and fluency. Since mastery orientation is cited by most authors as being the most intrinsic form of motivation, these results seem well-founded (Ames & Archer, 1988; Ames & Ames, 1991; Pintrich, Marx, & Boyle, 1993; Elliot & Church 1997).

Suggestions for Future Research

The present study, while answering several research questions, also introduces several questions for further research. Among the most immediate of questions is the issue of generalizability first to other classes of German at a similar level of study. Furthermore, the question of how other levels of German are influenced by the practice of topic modulation should be researched. Finally, are learners of other language similarly influenced?

This study considered only short-term writing differences. Future research should consider longitudinal analysis of similar practices to determine any long-term effects that the continued practice of assigned versus self-selected topics might have on writing.

This study used timed writing inside of class for all the analyses. Replication of the study could be performed to determine if topic control modulation has a similar effect when participants write without time constraint and not in-class.

Topic control might influence many other variables (such as affective ones) besides writing fluency and complexity. Future research might ask students to indicate whether similar modulations of topic control were equally helpful toward language learning (and language writing learning) or not. Also, participants could be asked to indicate the level of enjoyment the writers experienced with each of the writing practices.

This study did not consider differences that each teacher may have placed on issues of grammatical accuracy (not tested in the present study) or complexity.

Three of the groups writing on self-selected topics indicated significantly higher levels of confidence in their written work than when they wrote on assigned topics. Qualitative research methods could be employed to determine what aspects of each piece of writing (or non-linguistic features) influence the trend toward higher levels of confidence (i.e., what constructions, lexical items, or affective variables – not considered in the present study –of a participant's writing caused the increased levels of confidence). how each was (or was not).

Complexity increased over time. Future studies might look at individual elements of grammar that contribute to a total complexity score (such as word order, number of subordinations, frequencies of certain lexical items, etc.) to see how they change with topic control modulation. Complexity scores also ranged from very low (scores of zero and one) to very high (one participant had a score of 85) across all participants, but also from topic to topic; that is to say, participants in the study showed levels of variance in complexity from on time to the next. Further analysis could determine which types of topics yielded the most complex writing.

Way, Joiner, & Seaman (2000) found that different types of writing yielded different levels of complexity, expository writing eliciting more complex writing than did descriptive writing. Their research design assigned specific prompts to elicit the different types of writing (narrative, descriptive, and expository). Future research should consider different types of writing that emerge from self-selected topics to see if each is related to

different levels of grammatical complexity.

I mentioned the trade-off that occurs between complexity and accuracy during writing. Because of that trade-off, I chose to look more closely at complexity. Future studies should incorporate accuracy into the research as well. Wolfe-Quintero, Inagaki, & Kim (1998) determined that fluency, for example, was very reliably measured with *total words per error-free unit* (either T-unit or clause). Future studies can and should also evaluate the degree of tradeoff there is between complexity and accuracy in L2 writing.

Depth of topic development. According to the existing body of literature, grammatical complexity is not the only sub-product of writing affected by apprehension, interest, and affect. The degree that a topic is developed (which students either select or are assigned) is also influenced (Staton, 1998). Faigley, Daly, and Witte (1981), for example, suggested that in addition to grammatical complexity, development of ideas also seemed to be affected by affective variables: "High apprehensives were unable to develop their ideas as well as low apprehensives" (p. 19).

Gender was not a variable that the study considered. Future research, however, should evaluate not only the influences of gender differences in similar writing situations as those presented in this study, but also how topic development differs. Staton (1988), for example, found that with time, 13-year old boys showed a greater tendency to elaborate in their writing than did girls of the same age. This finding is even more interesting when considering that it was the girls, who initially elaborated more in writing.

Discourse development. According to Swaffar (1998), text analysis research, such as that used in this study "…too often addresses surface forms of language in context in terms of competence, not necessarily the appropriateness of content/concept links." (p 160). As a solution to this problem she identifies different types of discourse/speech acts (called *rhetorical types*) within clauses. They are sentences or clauses of description, expression of opinion, substantiation of opinion, and logical argument. Swaffar suggests that each rhetorical type is of increasing syntactic complexity and organizational functioning (an element, she argues, which changes over time, even if grammatical syntax does not). Therefore, texts which incorporate more clauses (or sentences) of opinion substantiation and logical argument should also be more syntactically complex. Future researchers replicating the present study should consider such rhetorical types as an alternative to the total complexity score analysis used here.

Cohesion and coherence. Along with development of an idea or theme, overall coherence to that main theme or idea within a text should be considered across the two types of topic modulation. Moreover, internal cohesion of writing could be examined. The two can and should be researched independently; Connor (1984), for example, determined that cohesion was not necessarily related to overall coherence[15] in the writings of adult ESL students, particularly when comparing those writings to those of native speakers (writers).

[15] (Cohesion is determined by lexically and grammatically inter-sentential relationships
Coherence is based on an overarching semantic relationship)

Limitations of the Study

In this study individual learner variations may have influenced differing amounts of planning, anxiety, or other extra-linguistic features which may have intervened to influence overall fluency or complexity. There were no measures taken to account for such differences.

I mentioned in chapter three the potential confound introduced by allowing participants the freedom to select any desired topic, thus making it difficult to determine if treatment or selected topic caused the outcomes observed. A given topic may have a profound influence on grammatical complexity or rhetorical style. A topic like "each member of my family," for example, could yield many parallel, non-complex, undeveloped sentences; each family member becomes its own topic and comment. There would be little room for elaboration on any given member. Moreover, the same participant which selects such a low-potential topic may select a much more kinetic topic in the following week. To illustrate this, one participant (participant # 11006, for example, wrote on his plans for the summer. His complexity score for the entry was 12.14. One week prior to this, his writings were less focused on any given topic, and he received a complexity score of 1.18. The week prior to this, his complexity score was 10.23. Without qualitative analysis to accompany these kinds of data, results from the text analyses (and statistical analyses as well) can be misleading. To reduce the influence that individual topics (self-selected ones) would have on outcome, these eight separate data collection periods times were reduced two major time groupings, *self-selected* or *teacher-assigned*.

This study has been directed toward factors beyond linguistic competence (skill that a learner has in the L2) that seem to affect how writing is managed and manifested. This study does not discount the importance of linguistic competence, particularly as it applies to achieving grammatical complexity. Indeed competence in a language itself may become a factor which influences the affective variables (such as risk-taking or motivation) that were considered a part of this study.

Conclusion

Vanett & Jurich (1990) argued that language learners are predominantly interested in learning and developing "a craft" (p.24). To do so, they argue, requires engaging content (Brown, 1994). The topics that are brought to bear on writing tasks are, therefore, key to such engagement. "However, textbooks are often organized by rhetorical patterns, and students are asked to choose a topic to fit the designated pattern. At times the result is boring and artificial writing." (Vanett & Jurich, 1990, p. 25).

Among the greatest challenges that a language teacher will face when calling upon his students to write is determining what topics will engage the learners in the most meaningful and authentic ways. The problem is confounded further by the requirement Kroll (1991) suggests: Every topic should have the potential for differing levels of depth based on the writing skills of the individual students. Raimes (1983) suggested that "choosing topics should be the teacher's most responsible activity" (p. 266). The present research suggests a slight modification to this statement to include the role of the learner in the topic selection process. As the present research has shown, writing fluency,

grammatical complexity, and elements of interest and confidence are all influenced by how topics are selected.

Writing in the foreign language classroom will likely continue much along the same course it always has. Teachers and administrators (hopefully) will continue to enact procedures designed to ensure the best learning on the part of and participation from language learners. Many have advocated the idea writing to learn a language (Sandler, 1987; Bräuer, 1997; Schrader, 2000). The present study argues in defense of that process. The next step in the sequence is the question of how much control to allow learners to take in that writing-to-learn process – both teacher and student alike need to address the question of who should be in control of the learner's writing.

Appendix A
Consent Form

Consent Form for
Participation in a Writing Study

Date of Study: Spring Semester, 2004
Place of Study: The University of Texas at Austin
Name of person performing this study: Joshua D. Bonzo
Contact Information:
(512) 441-9968 or
(512) 293-0464
email:
bonzoaj@mail.utexas.edu

Purpose of the Study: This study will be performed to compare how students write in a journal depending on the topics chosen.

Informed Consent

1. *Participation is entirely optional*. Your decision whether or not to participate in the study will not result in any class credit (either required or extra credit) should you participate. Choosing not to participate will not result in a loss of grade or classroom standing.

2. Please know that all information drawn from the analysis of your writing will be held in the strictest of confidence.

3. The information you write (including your name, which will only be used to keep track of entries) will not be used in any way to incriminate you, nor to diminish your academic status.

4. At any time during the study, you may choose to withdraw from the study (though you must continue to write in your journal as a part of the coursework) by writing on the cover of your journal (where the teacher and researcher can plainly view) that you wish to withdraw from the study. Should you later change your mind, and wish to participate, please indicate in a similar fashion that you once again wish to do so, indicating your reversal of decision by signing and dating the cover.

5. If you desire further explanation to any of these or other possible topics regarding your rights as a research participant, please feel at liberty to ask immediately or at any time during or after the study.

6. Upon completion of the study, full disclosure of results will be made available to any interested person in accordance with existing ethical and human subject protection laws (see http://www.utexas.edu/research/rsc/training/ for overviews of these laws)

Benefits / Adverse Effects:

There are no known benefits offered by participating in this study
There are no known adverse effects in conjunction with participating in this study

By signing below, you agree to participate in this study.

I have read the above information regarding my rights as a study participant and understand the meaning of giving my consent. All questions I have regarding my participation in this study have been satisfactorily answered. I therefore consent to participate in this writing study by allowing the researcher (named above) access to my writing samples for analysis.

Signed: _____

Date: _____

Addendum:
If you choose not to sign today, you may still indicate your willingness to participate by stating your desire on the cover of your journal bluebook along with your signature and date.

Appendix B
Scales of Participant-indicated Interest in a Topic
And Confidence in a Written Product

Interest in a Topic

Please indicate your level of interest in this topic by placing a check-mark or an 'X' under the most appropriate statement (check only one)
I found this topic:

Extremely Uninteresting	*Very Uninteresting*	*Slightly Uninteresting*	*Slightly Interesting*	*Very Interesting*	*Extremely Interesting*
☐	☐	☐	☐	☐	☐

Confidence in a Written Product

Please indicate your level of confidence in your written product by placing a check-mark or an 'X' under the most appropriate statement (check only one)
I feel that this journal entry is:

Some of my worst writing in German	*Some of my poorer writing in German*	*Somewhat poorer than average*	*Somewhat better than average*	*Some of my better writing in German*	*Some of my best writing in German*
☐	☐	☐	☐	☐	☐

Appendix C
Questionnaire Given at the End of the Study
to Determine Previous Experience with Journal Writing

Dear German 312K Student:

Thank you again for your participation in my study. The final piece of data I need to collect from you is about your previous experience with similar writing and your orientation towards this class. Please take a few minutes to complete this very brief questionnaire. Thank You!!!

Name: _____

Please place a check mark or "X" in the box next to the statement that ***most closely*** reflects your opinion of your writing. **Do not check more than one box**:

During the past five years:
☐ I have not written in a journal or diary at all.
☐ I have written in a journal or diary less than once every two to three years
☐ I have written in a journal or diary less than twice per year
☐ I have written in a journal or diary three to four times per year
☐ I have written in a journal or diary more than five times a year, but not every month
☐ I have written in a journal or diary once or more each month

Excluding only this German 312K course, what languages have you had experience with when writing a journal entry. Check all that apply:

☐ German

☐ English

☐ Any other language (please indicate all in the blanks below)

_____ _____

_____ _____

_____ _____

Appendix D
Goal Orientation Inventory
Adapted from Elliot & Church (1997)

Please rate the following statements about your classroom attitudes and perceptions in German 312K this semester. There are no right or wrong answers, so please be as accurate as you can in your answers. Use the scale below to rate each statement from 1 (indicating that the statement is not at all true of you) to 7 (indicating that the statement is very true of you). ***Please only circle one number for each answer.***

1. **It is important to me to do better than the other students.**

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

2. **I worry about the possibility of getting a bad grade in this class.**

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

3. **My goal in this class is to get a better grade than most of the students.**

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

4. **It is important for me to understand the content of this course as thoroughly as possible**

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

5. **I often think to myself, "What if I do badly in this class?"**

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

6. **I desire to completely master the material presented in this class.**

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

7. I am striving to demonstrate my ability relative to others in this class

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

8. I want to learn as much as possible from this class.

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

9. I just want to avoid doing poorly in this class

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

10. In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

11. I am motivated by the thought of outperforming my peers in this class.

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

12. My fear of performing poorly in this class is often what motivates me.

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

13. It is important to me to do well compared to others in this class.

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

14. I wish this class were not graded.

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

15. I want to do well in this class to show my ability to my family, friends, advisors, or others.

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

16. I hope to have gained a broader and deeper knowledge of German when I am done with this class.

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

17. I'm afraid that if I ask my instructor a "dumb" question, they might not think I'm very smart.

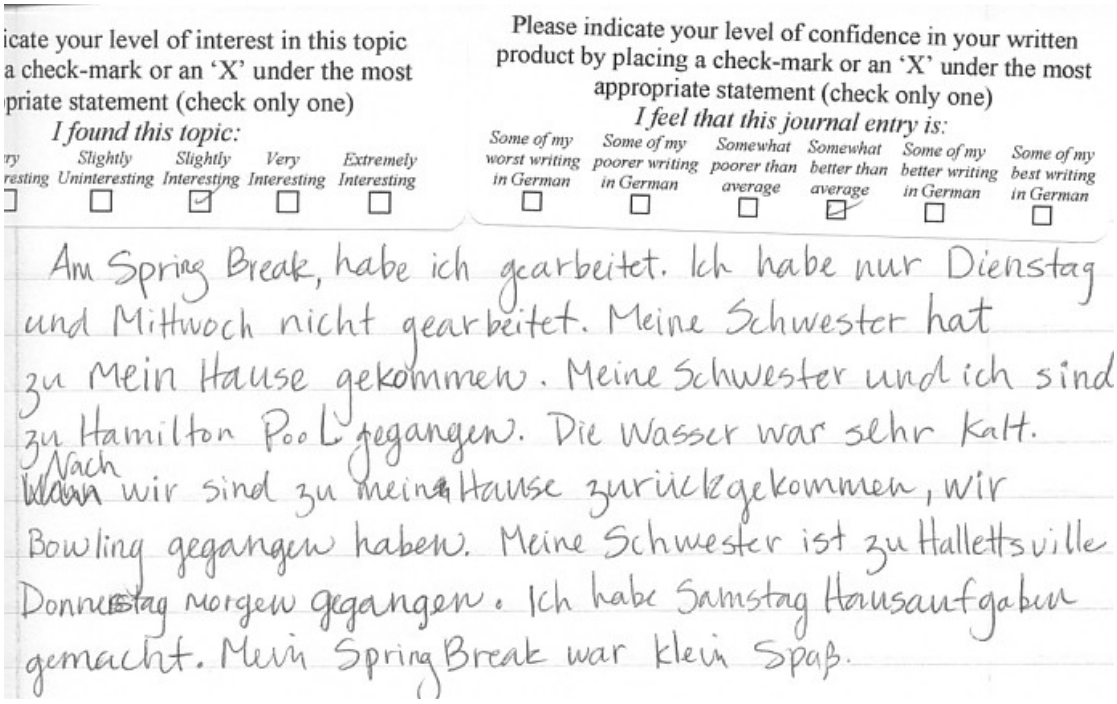
Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

18. In a class like this, I prefer course material that really challenges me so I can learn new things.

Not at all true of me			Somewhat true of me			Very true of me
1	2	3	4	5	6	7

Appendix E
Samples of Writing
(2 Copies of Each: Unmarked and Highlighted)

Sample 1a:
Group 110
Student 04
Week 5
Unmarked



icate your level of interest in this topic
a check-mark or an 'X' under the most
priate statement (check only one)

I found this topic:

ry resting	Slightly Uninteresting	Slightly Interesting	Very Interesting	Extremely Interesting
☐	☐	☑	☐	☐

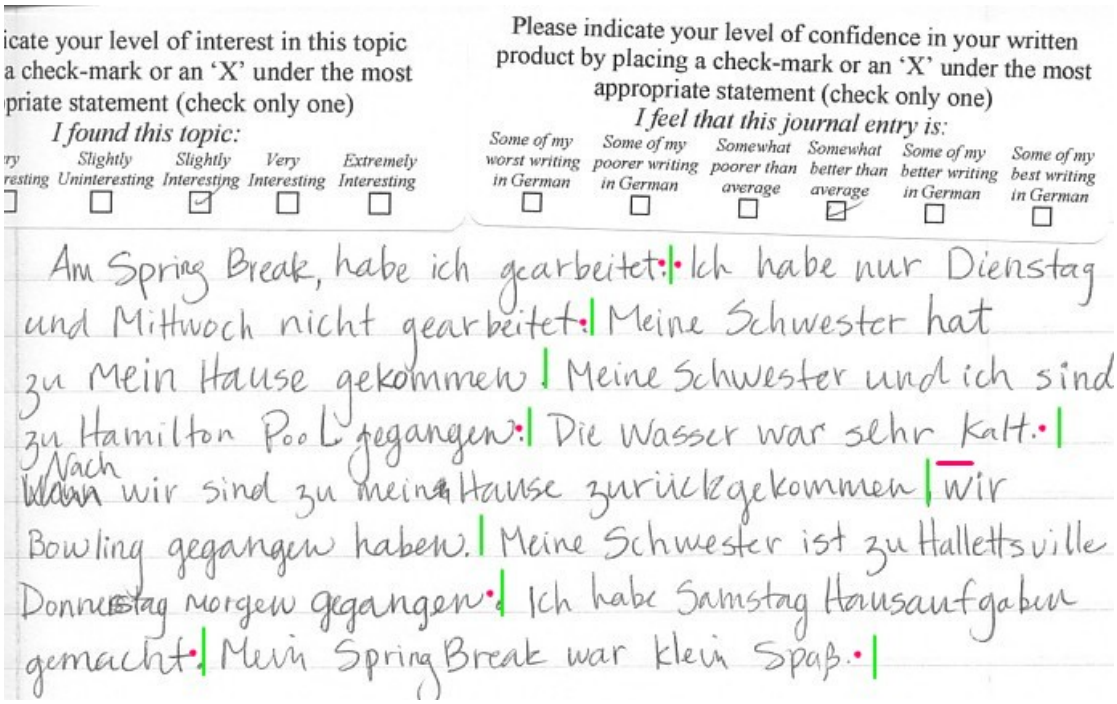
Please indicate your level of confidence in your written product by placing a check-mark or an 'X' under the most appropriate statement (check only one)

I feel that this journal entry is:

Some of my worst writing in German	Some of my poorer writing in German	Somewhat poorer than average	Somewhat better than average	Some of my better writing in German	Some of my best writing in German
☐	☐	☐	☑	☐	☐

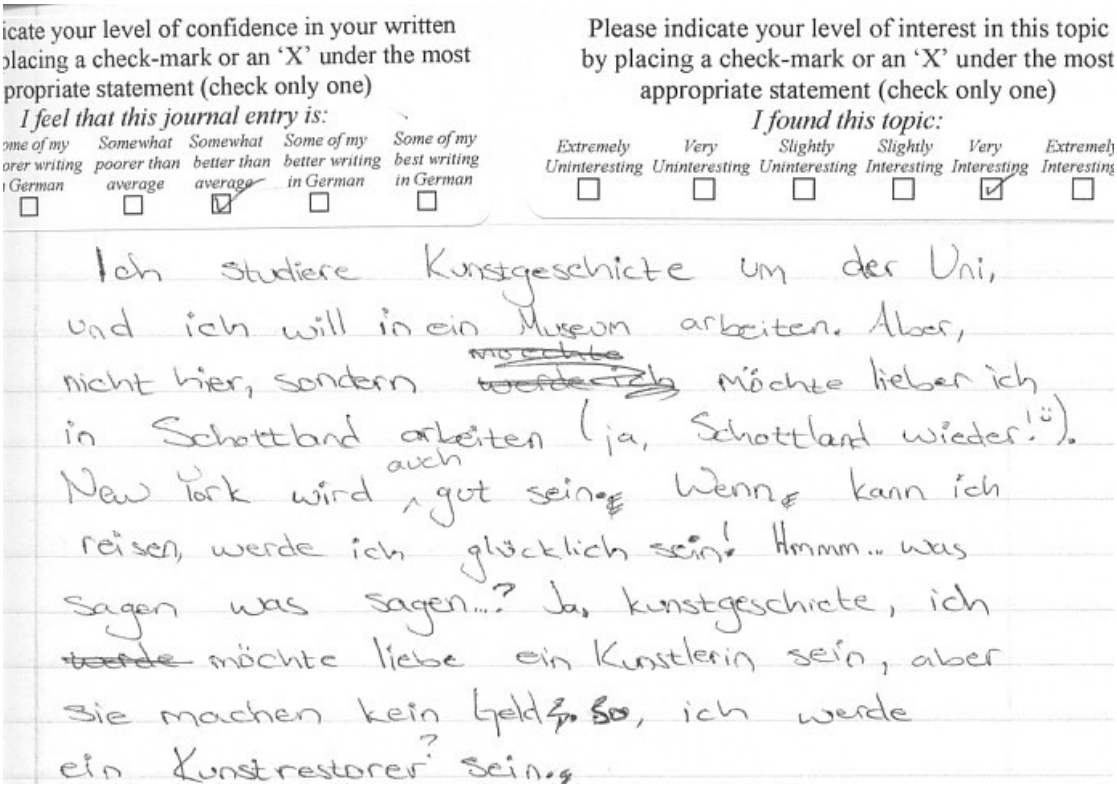
Am Spring Break, habe ich gearbeitet. Ich habe nur Dienstag und Mittwoch nicht gearbeitet. Meine Schwester hat zu Mein Hause gekommen. Meine Schwester und ich sind zu Hamilton Pool gegangen. Die Wasser war sehr kalt. Nach Wenn wir sind zu meine Hause zurückgekommen, wir Bowling gegangen haben. Meine Schwester ist zu Hallettsville Donnerstag morgen gegangen. Ich habe Samstag Hausaufgaben gemacht. Mein Spring Break war klein Spaß.

Sample 1b:
Group 110
Student 04
Week 5
Marked



- Vertical lines (green) represent clause boundaries
- Dot's (red) to the left of vertical lines represent accurate placement of verb(s) in canonical clauses
- Dot's (red) to the right of vertical lines represent accurate placement of verb(s) in non-canonical clauses
- Horizontal lines (red) to the right of vertical lines represent non-canonical clauses with inaccurate placement of verb(s) in non-canonical clauses

Sample 2a:
Group 201
Student 11
Week 3
Unmarked



icate your level of confidence in your written
placing a check-mark or an 'X' under the most
propriate statement (check only one)

I feel that this journal entry is:

ome of my orer writing n German	Somewhat poorer than average	Somewhat better than average	Some of my better writing in German	Some of my best writing in German
☐	☐	☑	☐	☐

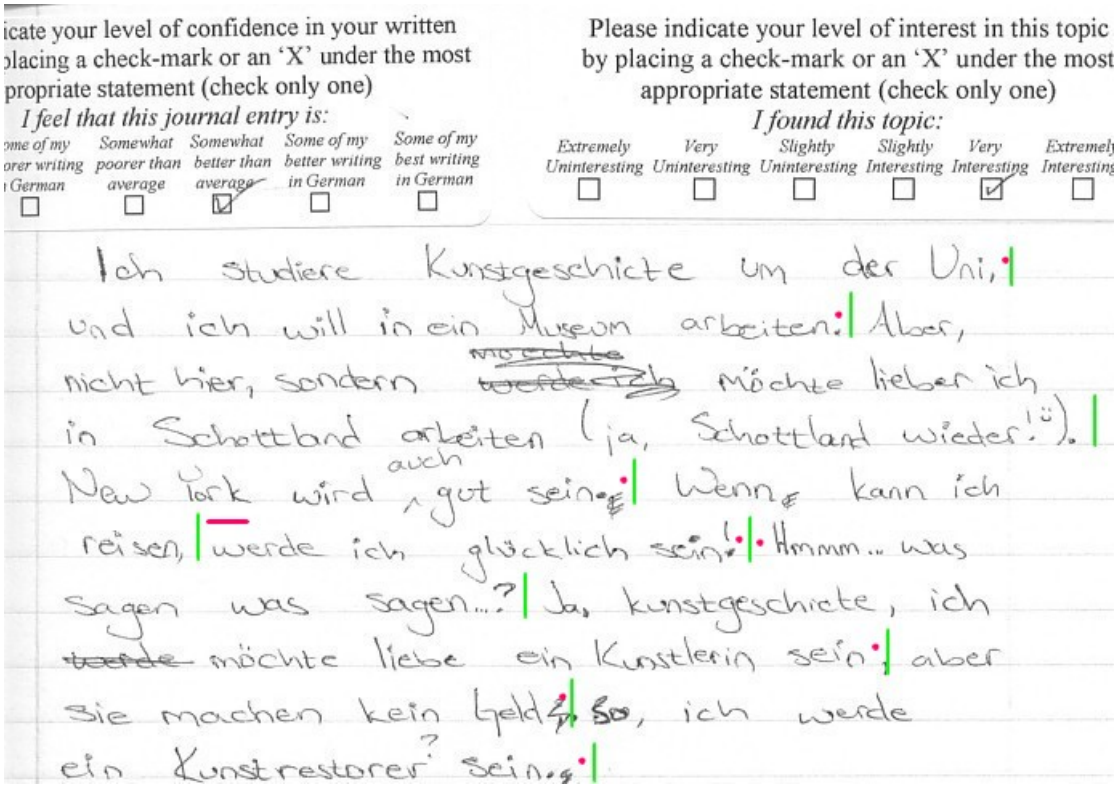
Please indicate your level of interest in this topic by placing a check-mark or an 'X' under the most appropriate statement (check only one)

I found this topic:

Extremely Uninteresting	Very Uninteresting	Slightly Uninteresting	Slightly Interesting	Very Interesting	Extremely Interesting
☐	☐	☐	☐	☑	☐

Ich studiere Kunstgeschichte um der Uni, und ich will in ein Museum arbeiten. Aber, nicht hier, sondern ~~möchte~~ ~~weiter~~ möchte lieber ich in Schottland arbeiten (ja, Schottland wieder! ü). New York wird auch gut sein. Wenn kann ich reisen, werde ich glücklich sein! Hmmm... was sagen was sagen...? Ja, kunstgeschichte, ich ~~werde~~ möchte liebe ein Kunstlerin sein, aber sie machen kein Geld $. So, ich werde ein Kunstrestorer? sein.

Sample 2b:
Group 201
Student 11
Week 3
Marked



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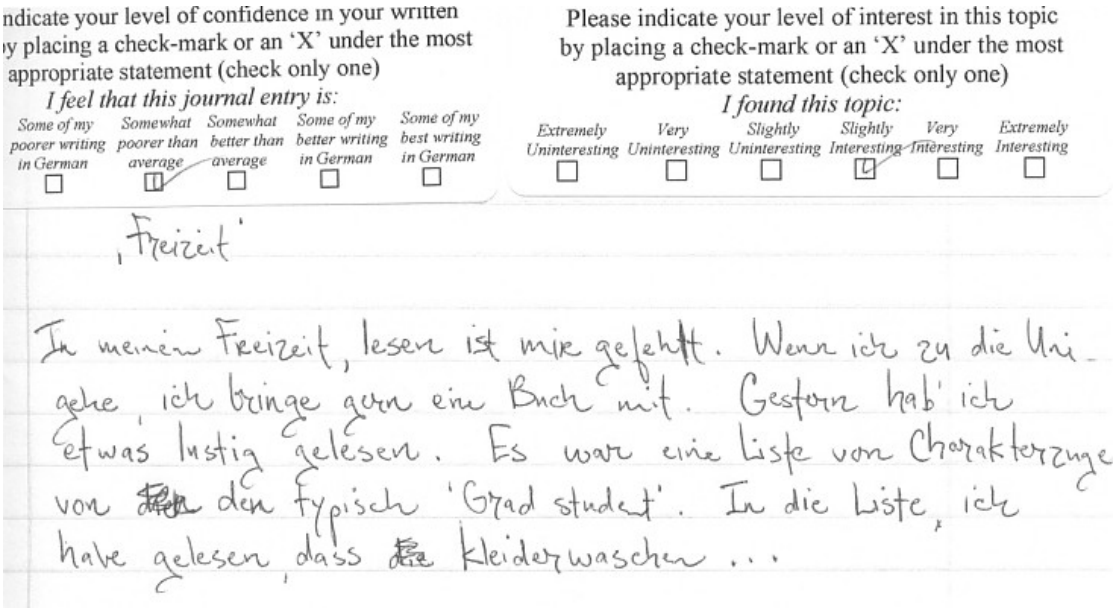
- Horizontal lines (red) to the right of vertical lines represent non-canonical clauses with inaccurate placement of verb(s) in non-canonical clauses

Sample 3a:
Group 310
Student 01
Week 4
Unmarked



ndicate your level of confidence in your written
y placing a check-mark or an 'X' under the most
appropriate statement (check only one)
I feel that this journal entry is:

Some of my poorer writing in German	*Somewhat poorer than average*	*Somewhat better than average*	*Some of my better writing in German*	*Some of my best writing in German*
☐	☒	☐	☐	☐

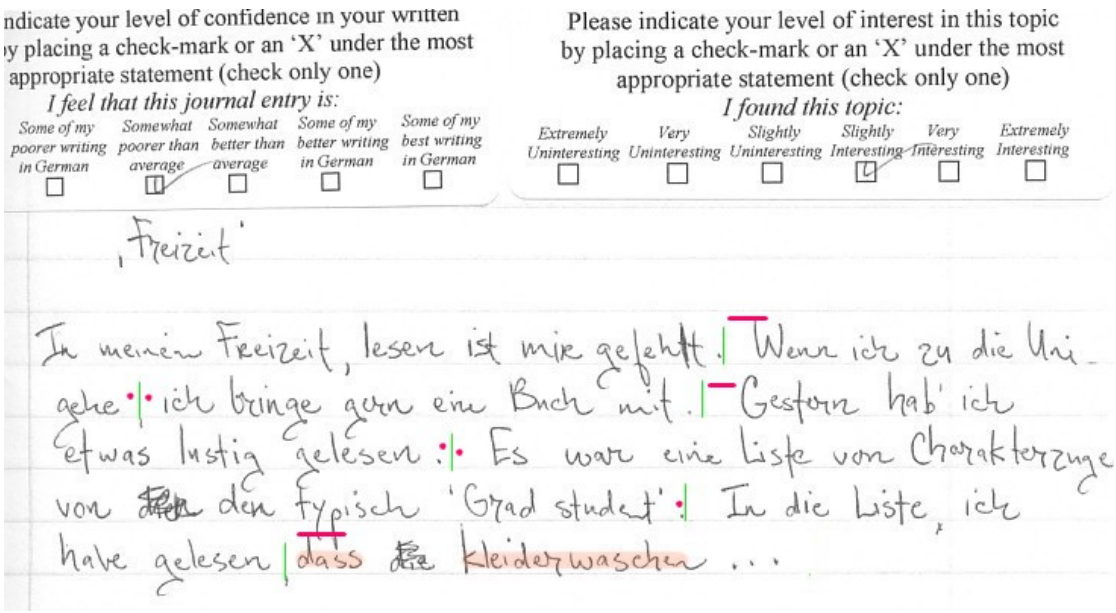
Please indicate your level of interest in this topic
by placing a check-mark or an 'X' under the most
appropriate statement (check only one)
I found this topic:

Extremely Uninteresting	*Very Uninteresting*	*Slightly Uninteresting*	*Slightly Interesting*	*Very Interesting*	*Extremely Interesting*
☐	☐	☐	☒	☐	☐

'Freizeit'

In meinem Freizeit, lesen ist mir gefehlt. Wenn ich zu die Uni-
gehe, ich bringe gern ein Buch mit. Gestern hab' ich
etwas lustig gelesen. Es war eine Liste von Charakterzuge
von ~~der~~ den typisch 'Grad student'. In die Liste, ich
habe gelesen, dass ~~die~~ Kleiderwaschen ...

Sample 3b:
Group 310
Student 01
Week 4
Marked


ndicate your level of confidence in your written
y placing a check-mark or an 'X' under the most
appropriate statement (check only one)
I feel that this journal entry is:
Some of my poorer writing in German ☐ | *Somewhat poorer than average* ☒ | *Somewhat better than average* ☐ | *Some of my better writing in German* ☐ | *Some of my best writing in German* ☐

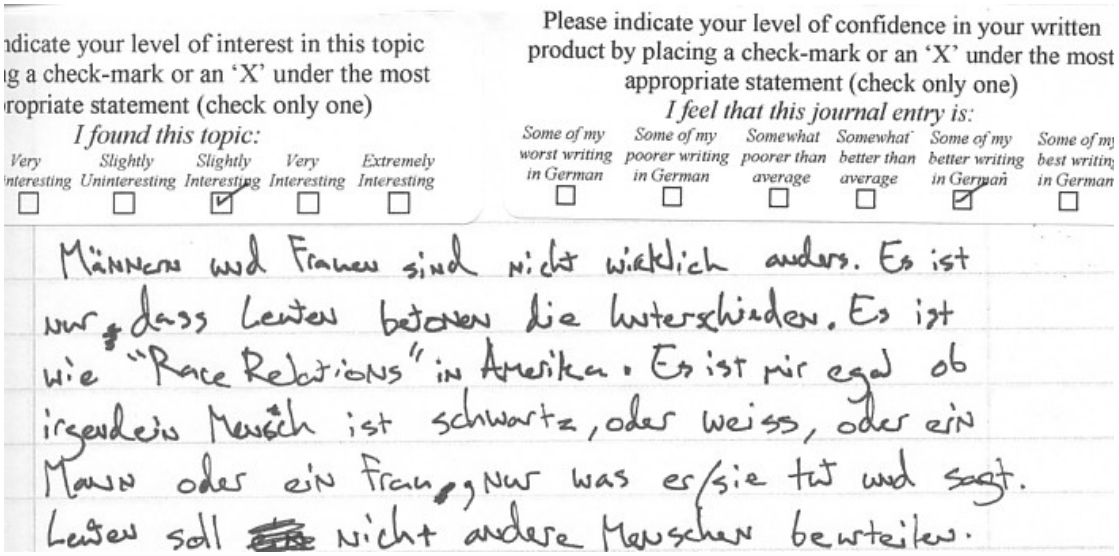
Please indicate your level of interest in this topic
by placing a check-mark or an 'X' under the most
appropriate statement (check only one)
I found this topic:
Extremely Uninteresting ☐ | *Very Uninteresting* ☐ | *Slightly Uninteresting* ☐ | *Slightly Interesting* ☑ | *Very Interesting* ☐ | *Extremely Interesting* ☐

'Freizeit'

In meinem Freizeit, lesen ist mir gefehlt. | Wenn ich zu die Uni- gehe •| • ich bringe gern ein Buch mit. | — Gestern hab' ich etwas lustig gelesen :| • Es war eine Liste von Charakterzuge von ~~der~~ den typisch 'Grad student' •| In die Liste, ich habe gelesen | dass die Kleiderwaschen ...

- Vertical lines (green) represent clause boundaries
- Dot's (red) to the left of vertical lines represent accurate placement of verb(s) in canonical clauses
- Dot's (red) to the right of vertical lines represent accurate placement of verb(s) in non-canonical clauses
- Horizontal lines (red) to the right of vertical lines represent non-canonical clauses with inaccurate placement of verb(s) in non-canonical clauses
- Highlighted words at end (orange) represent words not occurring in a clause

Sample 4a:
Group 301
Student 04
Week 6
Unmarked



ndicate your level of interest in this topic
g a check-mark or an 'X' under the most
ropriate statement (check only one)

I found this topic:

Very nteresting	*Slightly Uninteresting*	*Slightly Interesting*	*Very Interesting*	*Extremely Interesting*
☐	☐	☑	☐	☐

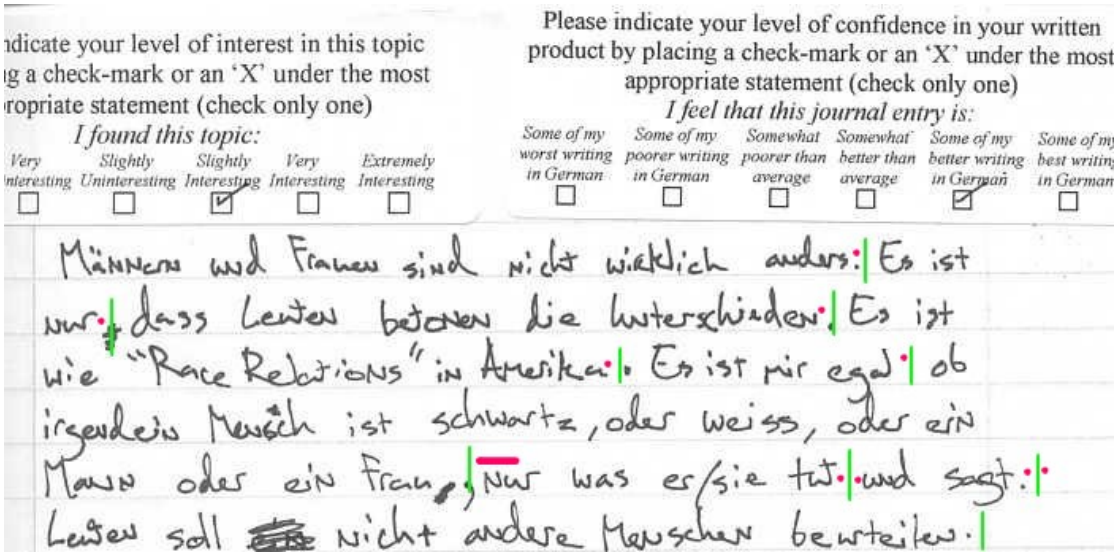
Please indicate your level of confidence in your written product by placing a check-mark or an 'X' under the most appropriate statement (check only one)

I feel that this journal entry is:

Some of my worst writing in German	*Some of my poorer writing in German*	*Somewhat poorer than average*	*Somewhat better than average*	*Some of my better writing in German*	*Some of my best writing in German*
☐	☐	☐	☐	☑	☐

Männern und Frauen sind nicht wirklich anders. Es ist nur, dass Leuten betonen die Unterschieden. Es ist wie "Race Relations" in Amerika. Es ist mir egal ob irgendein Mensch ist schwartz, oder weiss, oder ein Mann oder ein Frau, nur was er/sie tut und sagt. Leuten soll ~~Esse~~ nicht andere Menschen bewteilen.

Sample 4b:
Group 301
Student 04
Week 6
Marked



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- Dot's (red) to the right of vertical lines represent accurate placement of verb(s) in non-canonical clauses
- Horizontal lines (red) to the right of vertical lines represent non-canonical clauses with inaccurate placement of verb(s) in non-canonical clauses

Appendix F
Master Data
Group 1

Part I

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
11001					
	1	87	53	12	4.02
	2	83	41	4	3.18
	3	80	44	0	3.48
	4	120	71	9	4.58
	5	108	60	0	4.08
	6	115	69	0	4.55
	7	164	72	0	3.98
	8	127	86	0	5.40
11003					
	1	29	23	2	3.02
	2	53	34	0	3.30
	3	42	33	0	3.60
	4	29	21	0	2.76
	5	58	44	0	4.09
	6	24	19	0	2.74
	7	58	42	0	3.90
	8				
11004					
	1	36	22	0	2.59
	2	36	20	0	2.36
	3				
	4	68	48	0	4.12
	5	65	37	0	3.25
	6				
	7				
	8	75	44	0	3.59
11005					
	1	46	31	0	3.23
	2	43	18	0	1.94
	3	43	26	0	2.80
	4	56	35	0	3.31
	5	97	52	0	3.73
	6	66	35	0	3.05
	7	106	47	0	3.23
	8	57	32	0	3.00

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
11006					
	1	35	29	0	3.47
	2	55	24	0	2.29
	3	46	30	0	3.13
	4	43	35	0	3.77
	5	45	32	0	3.37
	6	48	36	0	3.67
	7	34	27	0	3.27
	8	58	44	0	4.09
11007					
	1	69	44	0	3.75
	2	65	36	1	3.16
	3	100	58	0	4.10
	4	90	46	0	3.43
	5	115	64	0	4.22
	6	117	71	0	4.64
	7	111	60	0	4.03
	8	100	55	2	3.89
11008					
	1	33	25	0	3.08
	2	68	32	0	2.74
	3	51	26	0	2.57
	4	60	33	3	3.01
	5	41	28	0	3.09
	6	65	41	0	3.60
	7	73	43	0	3.56
	8	49	35	0	3.54
11009					
	1	38	28	0	3.21
	2	36	22	0	2.59
	3				
	4	43	31	0	3.34
	5				
	6	47	35	0	3.61
	7	11	11	0	2.35
	8	41	35	0	3.87
11011					
	1	66	42	0	3.66
	2	52	32	0	3.14
	3	58	36	0	3.34
	4	100	64	0	4.53
	5	85	57	0	4.37
	6	85	52	0	3.99
	7	104	57	2	3.95
	8	80	48	0	3.79

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
11012					
	1	36	24	0	2.83
	2	46	25	0	2.61
	3				
	4	48	28	0	2.86
	5	45	29	0	3.06
	6				
	7	54	39	0	3.75
	8	64	32	0	2.83
11013					
	1	58	38	0	3.53
	2	40	28	0	3.13
	3	41	32	5	3.53
	4	58	43	2	3.99
	5	51	37	0	3.66
	6	71	48	0	4.03
	7	86	58	0	4.42
	8	57	43	4	4.03
11014					
	1	59	40	0	3.68
	2	57	34	0	3.18
	3	35	23	0	2.75
	4	66	46	0	4.00
	5				
	6	58	43	1	3.99
	7	53	32	0	3.11
	8	31	20	0	2.54
11015					
	1	117	60	0	3.92
	2				
	3	57	37	0	3.47
	4	136	72	0	4.37
	5	87	61	0	4.62
	6	137	70	0	4.23
	7				
	8				
11016					
	1	48	31	0	3.16
	2	55	32	0	3.05
	3	50	31	0	3.10
	4	74	48	7	3.95
	5	65	38	0	3.33
	6	70	46	0	3.89
	7	26	18	0	2.50
	8				

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
11019					
	1				
	2	74	37	0	3.04
	3	70	47	0	3.97
	4	50	34	0	3.40
	5	88	56	0	4.22
	6	102	51	0	3.57
	7	107	60	0	4.10
	8	106	64	0	4.40

Part II

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
11001						
	1	1	3	0	11	0.13
	2	5	0	0	10	0.12
	3	7	0	0	14	0.18
	4	9	4	0	30	0.25
	5	5	1	0	13	0.12
	6	9	2	0	24	0.21
	7	11	5	0	37	0.23
	8	8	4	0	28	0.22
11003						
	1	1	3	0	11	0.38
	2	3	0	0	6	0.11
	3	3	0	0	6	0.14
	4	4	0	0	8	0.28
	5	4	2	0	14	0.24
	6	2	0	0	4	0.17
	7	3	1	0	9	0.16
	8					
11004						
	1	3	1	0	9	0.25
	2	3	0	0	6	0.17
	3					
	4	9	1	0	21	0.31
	5	8	0	0	16	0.25
	6					
	7					
	8	2	0	0	4	0.05
11005						
	1	5	0	0	10	0.22
	2	2	0	0	4	0.09
	3	2	0	0	4	0.09
	4	3	0	0	6	0.11
	5	3	0	0	6	0.06
	6	0	0	0	0	0.00
	7	0	0	0	0	0.00
	8	0	0	0	0	0.00

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
11006						
	1	4	0	0	8	0.23
	2	6	0	0	12	0.22
	3	2	0	0	4	0.09
	4	2	0	0	4	0.09
	5	0	1	0	3	0.07
	6	4	1	0	11	0.23
	7	3	0	0	6	0.18
	8	1	2	0	8	0.14
11007						
	1	5	5	0	25	0.36
	2	1	1	0	5	0.08
	3	5	2	0	16	0.16
	4	2	1	0	7	0.08
	5	12	1	0	27	0.23
	6	5	2	0	16	0.14
	7	3	2	0	12	0.11
	8	2	1	0	7	0.07
11008						
	1	1	0	0	2	0.06
	2	1	2	0	8	0.12
	3	0	2	0	6	0.12
	4	6	0	0	12	0.20
	5	0	0	0	0	0.00
	6	0	0	0	0	0.00
	7	1	1	0	5	0.07
	8	2	0	0	4	0.08
11009						
	1	3	0	0	6	0.16
	2	1	2	0	8	0.22
	3					
	4	5	2	0	16	0.37
	5					
	6	2	1	0	7	0.15
	7	1	0	0	2	0.18
	8	2	0	0	4	0.10
11011						
	1	2	0	0	4	0.06
	2	3	3	0	15	0.29
	3	1	1	0	5	0.09
	4	9	3	0	27	0.27
	5	6	4	0	24	0.28
	6	1	3	0	11	0.13
	7	5	2	0	16	0.15
	8	0	0	0	0	0.00

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
11012						
	1	0	1	0	3	0.08
	2	2	1	0	7	0.15
	3					
	4	5	1	0	13	0.27
	5	1	0	0	2	0.04
	6					
	7	2	1	0	7	0.13
	8	0	0	0	0	0.00
11013						
	1	2	2	0	10	0.17
	2	3	2	0	12	0.30
	3	1	1	0	5	0.12
	4	1	4	0	14	0.24
	5	2	3	0	13	0.25
	6	4	2	0	14	0.20
	7	9	4	0	30	0.35
	8	3	2	0	12	0.21
11014						
	1	2	0	2	4	0.07
	2	2	1	1	11	0.19
	3	2	0	0	4	0.11
	4	5	0	0	10	0.15
	5					
	6	2	0	0	4	0.07
	7	2	0	0	4	0.08
	8	1	0	0	2	0.06
11015						
	1	6	1	0	15	0.13
	2					
	3	5	0	0	10	0.18
	4	8	0	0	16	0.12
	5	1	0	0	2	0.02
	6	2	0	0	4	0.03
	7					
	8					
11016						
	1	3	0	0	6	0.13
	2	1	1	0	5	0.09
	3	1	0	0	2	0.04
	4	5	1	0	13	0.18
	5	0	0	0	0	0.00
	6	2	0	0	4	0.06
	7	0	0	0	0	0.00
	8					

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
11019						
	1					
	2	3	0	0	6	0.08
	3	2	0	0	4	0.06
	4	0	2	0	6	0.12
	5	6	0	0	12	0.14
	6	6	0	0	12	0.12
	7	3	1	0	9	0.08
	8	8	1	0	19	0.18

Part III

Participant Code	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
11001				
	1	20	3	23.13
	2	0	9	9.12
	3	4	3	7.18
	4	29	27	56.25
	5	10	5	15.12
	6	13	8	21.21
	7	41	44	85.23
	8	34	31	65.22
11003				
	1	6	4	10.38
	2	0	0	0.11
	3	3	4	7.14
	4	3	4	7.28
	5	5	5	10.24
	6	4	3	7.17
	7	8	4	12.16
	8		0	
11004				
	1	9	2	11.25
	2	1		1.17
	3			
	4	19	20	39.31
	5	9	4	13.25
	6			
	7			
	8	12	6	18.05
11005				
	1	8	3	11.22
	2	0	0	0.09
	3	1	0	1.09
	4	7	6	13.11
	5	6	3	9.06
	6	3	6	9.00
	7	9	0	9.00
	8	2	6	8.00
11006				
	1	2	3	5.23
	2	0	0	0.22
	3	5	2	7.09
	4	1	1	2.09
	5	5	3	8.07
	6	5	5	10.23
	7	1	0	1.18
	8	9	3	12.14

Participant Code	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
11007				
	1	20	15	35.36
	2	1	2	3.08
	3	9	5	14.16
	4	12	13	25.08
	5	3	7	10.23
	6	11	13	24.14
	7	1	5	6.11
	8	12	13	25.07
11008				
	1	2	0	2.06
	2	1	3	4.12
	3	8	11	19.12
	4	1	6	7.20
	5	1	2	3.00
	6	4	2	6.00
	7	6	1	7.07
	8	1	0	1.08
11009				
	1	8	4	12.16
	2	6	9	15.22
	3			
	4	15	17	32.37
	5			
	6	7	1	8.15
	7	2	1	3.18
	8	10	3	13.10
11011				
	1	7	0	7.06
	2	13	9	22.29
	3	8	3	11.09
	4	18	15	33.27
	5	21	9	30.28
	6	21	21	42.13
	7	22	16	38.15
	8	14	9	23.00
11012				
	1	4	3	7.08
	2	3	3	6.15
	3		0	
	4	6	7	13.27
	5	4	2	6.04
	6			
	7	4	2	6.13
	8	0	0	0.00

Participant Code	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
11013				
	1	13	10	23.17
	2	6	6	12.30
	3	4	3	7.12
	4	14	13	27.24
	5	10	12	22.25
	6	18	12	30.20
	7	22	8	30.35
	8	10	12	22.21
11014				
	1	11	6	17.07
	2	5	5	10.19
	3	0	3	3.11
	4	5	5	10.15
	5			
	6	9	7	16.07
	7	4	0	4.08
	8	4	1	5.06
11015				
	1	2	2	4.13
	2		0	
	3	1	1	2.18
	4	6	9	15.12
	5	6	0	6.02
	6	10	6	16.03
	7			
	8			
11016				
	1	11	7	18.13
	2	7	6	13.09
	3	8	0	8.04
	4	2	8	10.18
	5	3	0	3.00
	6	4	0	4.06
	7	0	0	0.00
	8			
11019				
	1		0	
	2	5	0	5.08
	3	7	5	12.06
	4	6	7	13.12
	5	12	7	19.14
	6	9	6	15.12
	7	12	9	21.08
	8	17	11	28.18

Appendix G
Master Data
Group 2

Part I

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
20101					
	1	76	44	0	3.57
	2	65	43	0	3.77
	3				
	4	71	50	0	4.20
	5	38	33	0	3.79
	6	69	47	0	4.00
	7	55	37	0	3.53
	8	77	46	0	3.71
20102					
	1	72	44	0	3.67
	2	63	44	0	3.92
	3				
	4	86	52	0	3.96
	5	61	35	0	3.17
	6	65	34	0	2.98
	7	33	23	0	2.83
	8				
20103					
	1	102	70	0	4.90
	2	109	61	0	4.13
	3	108	73	4	4.97
	4	86	60	0	4.57
	5	106	74	0	5.08
	6	96	58	0	4.19
	7	75	55	0	4.49
	8	125	78	0	4.93
20104					
	1	55	42	0	4.00
	2	58	42	0	3.90
	3	87	54	0	4.09
	4	80	51	0	4.03
	5	57	39	7	3.65
	6	46	33	0	3.44
	7	49	31	0	3.13
	8	62	45	0	4.04

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
20105					
	1	74	47	0	3.86
	2	70	44	0	3.72
	3	67	50	0	4.32
	4	73	51	0	4.22
	5	72	48	0	4.00
	6	47	33	0	3.40
	7	50	40	0	4.00
	8	85	57	0	4.37
20106					
	1	106	72	0	4.94
	2	82	57	0	4.45
	3	62	40	0	3.59
	4	68	46	0	3.94
	5	90	53	0	3.95
	6	61	38	2	3.44
	7	120	65	0	4.20
	8	84	48	0	3.70
20108					
	1	66	37	0	3.22
	2	87	51	0	3.87
	3	66	43	0	3.74
	4	76	45	0	3.65
	5	64	38	0	3.36
	6	38	24	0	2.75
	7	62	31	0	2.78
	8	83	58	2	4.50
20109					
	1	87	50	0	3.79
	2	93	53	0	3.89
	3	82	54	0	4.22
	4	95	59	0	4.28
	5	59	30	2	2.76
	6	91	45	3	3.34
	7	83	52	2	4.04
	8	115	63	0	4.15
20111					
	1	44	35	0	3.73
	2	62	43	0	3.86
	3	64	41	0	3.62
	4	71	47	0	3.94
	5	52	37	0	3.63
	6	59	32	0	2.95
	7	47	31	0	3.20
	8	68	51	0	4.37

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
20112					
	1	41	27	0	2.98
	2	46	30	0	3.13
	3	36	31	0	3.65
	4	52	35	0	3.43
	5	48	30	0	3.06
	6	29	19	0	2.49
	7	36	27	0	3.18
	8	58	34	0	3.16
20113					
	1	75	41	0	3.35
	2	58	38	0	3.53
	3	80	38	0	3.00
	4	34	21	4	2.55
	5	68	36	0	3.09
	6	71	33	0	2.77
	7	48	33	0	3.37
	8				
20115					
	1	54	32	0	3.08
	2	73	49	0	4.06
	3	66	37	0	3.22
	4	68	45	0	3.86
	5	50	34	0	3.40
	6	45	26	0	2.74
	7	40	30	0	3.35
	8	82	55	0	4.29
20116					
	1	49	33	0	3.33
	2	76	43	0	3.49
	3	72	42	0	3.50
	4	76	46	0	3.73
	5	53	34	0	3.30
	6	47	27	0	2.78
	7	44	30	0	3.20
	8	72	46	0	3.83
20117					
	1	88	53	0	4.00
	2	96	63	2	4.55
	3				
	4	120	77	0	4.97
	5	82	51	5	3.98
	6	85	46	0	3.53
	7	56	41	0	3.87
	8	103	60	1	4.18

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
20118					
	1	83	56	0	4.35
	2	90	46	0	3.43
	3	77	46	0	3.71
	4	102	54	0	3.78
	5	95	52	0	3.77
	6	74	42	0	3.45
	7	81	43	0	3.38
	8	100	64	0	4.53
20119					
	1	69	49	8	4.17
	2	71	45	3	3.78
	3	99	53	0	3.77
	4	95	65	0	4.72
	5	60	42	1	3.83
	6	49	34	0	3.43
	7	49	33	0	3.33
	8	66	44	4	3.83
20121					
	1	90	48	0	3.58
	2	140	77	0	4.60
	3	102	66	0	4.62
	4	135	85	0	5.17
	5	83	58	0	4.50
	6	72	46	0	3.83
	7	55	37	0	3.53
	8				
20122					
	1	59	34	0	3.13
	2	32	20	0	2.50
	3	47	25	0	2.58
	4	35	29	0	3.47
	5	32	25	0	3.13
	6	27	17	0	2.31
	7	29	24	0	3.15
	8	60	40	0	3.65
20123					
	1	33	24	0	2.95
	2	57	40	2	3.75
	3	48	36	3	3.67
	4	63	44	2	3.92
	5	41	31	0	3.42
	6	33	24	0	2.95
	7	30	23	0	2.97
	8	41	27	0	2.98

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
20124					
	1	61	37	0	3.35
	2	103	47	0	3.27
	3	52	39	0	3.82
	4	44	32	0	3.41
	5	45	32	0	3.37
	6	59	30	0	2.76
	7	34	28	0	3.40
	8	56	36	0	3.40

Part II

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
20101						
	1	5	0	0	10	0.13
	2	1	1	0	5	0.08
	3					
	4	2	2	0	10	0.14
	5	1	0	0	2	0.05
	6	1	1	0	5	0.07
	7	0	1	0	3	0.05
	8	9	2	0	24	0.31
20102						
	1	1	0	0	2	0.03
	2	5	0	0	10	0.16
	3					
	4	1	1	0	5	0.06
	5	0	0	0	0	0.00
	6	4	0	0	8	0.12
	7	0	0	0	0	0.00
	8					
20103						
	1	3	0	0	6	0.06
	2	4	2	1	18	0.17
	3	7	3	0	23	0.21
	4	3	0	1	10	0.12
	5	6	0	0	12	0.11
	6	12	5	0	39	0.41
	7	8	1	0	19	0.25
	8	6	1	0	15	0.12
20104						
	1	0	0	0	0	0.00
	2	1	1	0	5	0.09
	3	3	0	0	6	0.07
	4	0	0	0	0	0.00
	5	4	4	0	20	0.35
	6	1	1	0	5	0.11
	7	1	1	0	5	0.10
	8	2	2	0	10	0.16

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
20105						
	1	1	1	0	5	0.07
	2	0	0	0	0	0.00
	3	3	1	0	9	0.13
	4	2	0	0	4	0.05
	5	2	2	0	10	0.14
	6	2	0	0	4	0.09
	7	2	2	0	10	0.20
	8	3	2	0	12	0.14
20106						
	1	4	1	0	11	0.10
	2	1	1	0	5	0.06
	3	4	0	0	8	0.13
	4	0	0	0	0	0.00
	5	5	3	0	19	0.21
	6	1	0	0	2	0.03
	7	1	0	0	2	0.02
	8	3	5	0	21	0.25
20108						
	1	0	0	0	0	0.00
	2	2	0	0	4	0.05
	3	0	0	0	0	0.00
	4	1	0	0	2	0.03
	5	0	0	0	0	0.00
	6	1	0	0	2	0.05
	7	0	0	0	0	0.00
	8	1	1	0	5	0.06
20109						
	1	0	0	0	0	0.00
	2	1	0	0	2	0.02
	3	0	0	0	0	0.00
	4	1	1	0	5	0.05
	5	5	0	0	10	0.17
	6	3	0	0	6	0.07
	7	1	1	0	5	0.06
	8	4	1	0	11	0.10
20111						
	1	2	1	0	7	0.16
	2	3	2	0	12	0.19
	3	3	1	0	9	0.14
	4	2	0	0	4	0.06
	5	6	0	0	12	0.23
	6	3	0	0	6	0.10
	7	4	0	0	8	0.17
	8	2	1	0	7	0.10

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
20112						
	1	1	0	0	2	0.05
	2	1	0	0	2	0.04
	3	3	0	0	6	0.17
	4	0	0	0	0	0.00
	5	0	0	0	0	0.00
	6	1	1	0	5	0.17
	7	0	0	0	0	0.00
	8	8	1	0	19	0.33
20113						
	1	0	2	0	6	0.08
	2	0	0	0	0	0.00
	3	1	0	0	2	0.03
	4	3	1	0	9	0.26
	5	2	1	0	7	0.10
	6	7	0	0	14	0.20
	7	1	1	0	5	0.10
	8					
20115						
	1	0	0	0	0	0.00
	2	1	0	0	2	0.03
	3	2	0	0	4	0.06
	4	2	0	0	4	0.06
	5	4	1	0	11	0.22
	6	6	0	0	12	0.27
	7	0	0	0	0	0.00
	8	5	0	0	10	0.12
20116						
	1	3	1	0	9	0.18
	2	0	0	0	0	0.00
	3	6	1	0	15	0.21
	4	5	1	0	13	0.17
	5	3	3	0	15	0.28
	6	3	1	0	9	0.19
	7	1	1	0	5	0.11
	8	6	4	0	24	0.33
20117						
	1	3	1	0	9	0.10
	2	5	1	0	13	0.14
	3					
	4	5	1	0	13	0.11
	5	7	1	0	17	0.21
	6	1	1	0	5	0.06
	7	0	0	0	0	0.00
	8	6	0	0	12	0.12

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
20118						
	1	2	0	0	4	0.05
	2	1	0	0	2	0.02
	3	0	0	0	0	0.00
	4	8	2	0	22	0.22
	5	3	0	0	6	0.06
	6	3	1	0	9	0.12
	7	1	5	0	17	0.21
	8	5	0	0	10	0.10
20119						
	1	4	1	0	11	0.16
	2	3	0	0	6	0.08
	3	3	2	0	12	0.12
	4	3	1	0	9	0.09
	5	8	3	0	25	0.42
	6	3	1	0	9	0.18
	7	0	1	0	3	0.06
	8	2	1	0	7	0.11
20121						
	1	2	2	0	10	0.11
	2	5	4	1	26	0.19
	3	5	1	1	17	0.17
	4	8	1	3	31	0.23
	5	4	5	0	23	0.28
	6	6	2	0	18	0.25
	7	5	1	0	13	0.24
	8					
20122						
	1	1	0	0	2	0.03
	2	0	0	0	0	0.00
	3	2	1	0	7	0.15
	4	1	1	0	5	0.14
	5	3	1	0	9	0.28
	6	2	0	0	4	0.15
	7	2	0	0	4	0.14
	8	4	0	0	8	0.13
20123						
	1	2	0	0	4	0.12
	2	3	1	0	9	0.16
	3	2	0	0	4	0.08
	4	2	0	0	4	0.06
	5	0	1	0	3	0.07
	6	0	0	0	0	0.00
	7	3	0	0	6	0.20
	8	2	1	0	7	0.17

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
20124						
	1	2	0	0	4	0.07
	2	1	1	0	5	0.05
	3	1	0	0	2	0.04
	4	5	0	0	10	0.23
	5	2	0	0	4	0.09
	6	6	0	0	12	0.20
	7	1	0	0	2	0.06
	8	3	0	0	6	0.11

Part III

Participant Code	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
20101				
	1	15	18	33.13
	2	17	13	30.08
	3			
	4	8	6	14.14
	5	3	1	4.05
	6	8	2	10.07
	7	1	1	2.05
	8	3	11	14.31
20102				
	1	1	1	2.03
	2	4	8	12.16
	3			
	4	1	5	6.06
	5	1	1	2.00
	6	3	0	3.12
	7	1	1	2.00
	8			
20103				
	1	7	3	10.06
	2	9	7	16.17
	3	19	9	28.21
	4	7	3	10.12
	5	13	9	22.11
	6	27	25	52.41
	7	10	4	14.25
	8	10	10	20.12
20104				
	1	2	1	3.00
	2	3	1	4.09
	3	8	3	11.07
	4	4	5	9.00
	5	9	13	22.35
	6	5	3	8.11
	7	8	10	18.10
	8	10	2	12.16

Participant Code	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
20105				
	1	4	5	9.07
	2	8	4	12.00
	3	5	4	9.13
	4	3	0	3.05
	5	12	15	27.14
	6	0	0	0.09
	7	5	3	8.20
	8	6	8	14.14
20106				
	1	9	6	15.10
	2	7	2	9.06
	3	4	1	5.13
	4	3	0	3.00
	5	5	11	16.21
	6	1	1	2.03
	7	3	1	4.02
	8	15	15	30.25
20108				
	1	5	2	7.00
	2	2	3	5.05
	3	0	1	1.00
	4	3	2	5.03
	5	6	0	6.00
	6	0	1	1.05
	7	0	1	1.00
	8	1	7	8.06
20109				
	1	1	0	1.00
	2	1	1	2.02
	3	3	0	3.00
	4	5	0	5.05
	5	8	0	8.17
	6	10	0	10.07
	7	4	3	7.06
	8	17	4	21.10
20111				
	1	3	5	8.16
	2	7	4	11.19
	3	8	4	12.14
	4	8	4	12.06
	5	12	4	16.23
	6	0	0	0.10
	7	2	2	4.17
	8	10	14	24.10

Participant Code	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
20112				
	1	0	0	0.05
	2	3	7	10.04
	3	2	2	4.17
	4	2	6	8.00
	5	7	9	16.00
	6	2	1	3.17
	7	0	0	0.00
	8	1	4	5.33
20113				
	1	0	4	4.08
	2	1	1	2.00
	3	2	2	4.03
	4	3	1	4.26
	5	6	5	11.10
	6	6	0	6.20
	7	0	1	1.10
	8			
20115				
	1	1	3	4.00
	2	2	3	5.03
	3	3	2	5.06
	4	2	1	3.06
	5	5	1	6.22
	6	3	0	3.27
	7	2	1	3.00
	8	5	2	7.12
20116				
	1	1	3	4.18
	2	3	7	10.00
	3	12	4	16.21
	4	10	6	16.17
	5	5	6	11.28
	6	4	3	7.19
	7	0	1	1.11
	8	15	21	36.33
20117				
	1	5	4	9.10
	2	8	4	12.14
	3		0	
	4	13	3	16.11
	5	11	7	18.21
	6	5	3	8.06
	7	3	0	3.00
	8	8	9	17.12

Participant Code	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
20118				
	1	0	0	0.05
	2	6	3	9.02
	3	1	1	2.00
	4	9	3	12.22
	5	10	3	13.06
	6	10	12	22.12
	7	14	15	29.21
	8	6	10	16.10
20119				
	1	9	10	19.16
	2	11	9	20.08
	3	21	19	40.12
	4	15	12	27.09
	5	11	14	25.42
	6	4	3	7.18
	7	1	5	6.06
	8	20	24	44.11
20121				
	1	16	9	25.11
	2	24	27	51.19
	3	13	17	30.17
	4	23	25	48.23
	5	13	12	25.28
	6	13	9	22.25
	7	13	10	23.24
	8		0	
20122				
	1	1	0	1.03
	2	0	0	0.00
	3	0	1	1.15
	4	4	0	4.14
	5	3	2	5.28
	6	3	0	3.15
	7	1	0	1.14
	8	3	1	4.13
20123				
	1	2	0	2.12
	2	4	4	8.16
	3	4	1	5.08
	4	4	3	7.06
	5	9	10	19.07
	6	0	0	0.00
	7	1	0	1.20
	8	3	4	7.17

Participant Code 20124	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
	1	4	3	7.07
	2	0	1	1.05
	3	2	0	2.04
	4	3	1	4.23
	5	5	1	6.09
	6	2	0	2.20
	7	1	3	4.06
	8	2	1	3.11

Appendix H
Master Data
Group 3

Part I

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
31001					
	1	52	35	0	3.43
	2	36	23	0	2.71
	3	34	28	0	3.40
	4	44	33	2	3.52
	5	43	34	0	3.67
	6	55	37	0	3.53
	7	45	35	0	3.69
	8	55	35	0	3.34
31002					
	1	60	34	0	3.10
	2	49	28	0	2.83
	3	58	38	0	3.53
	4	80	46	0	3.64
	5	100	61	0	4.31
	6	87	54	0	4.09
	7	80	48	0	3.79
	8	78	46	0	3.68
31003					
	1	95	55	0	3.99
	2	75	39	0	3.18
	3	69	48	0	4.09
	4	80	52	0	4.11
	5	82	49	0	3.83
	6	69	43	0	3.66
	7	90	62	0	4.62
	8	91	55	6	4.08
31004					
	1	32	24	0	3.00
	2	36	28	0	3.30
	3	45	29	0	3.06
	4	64	43	0	3.80
	5	53	39	0	3.79
	6	76	51	0	4.14
	7	62	48	0	4.31
	8	70	39	0	3.30

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
31005					
	1	25	19	0	2.69
	2	8	7	0	1.75
	3				
	4	38	27	0	3.10
	5				
	6	33	29	0	3.57
	7	26	20	0	2.77
	8	21	14	0	2.16
31006					
	1	47	30	0	3.09
	2	63	36	0	3.21
	3	82	48	0	3.75
	4	110	61	0	4.11
	5	71	45	0	3.78
	6	74	48	0	3.95
	7	80	55	0	4.35
	8	97	63	0	4.52
31008					
	1	51	36	0	3.56
	2	41	23	0	2.54
	3	64	45	0	3.98
	4	87	51	0	3.87
	5	81	41	0	3.22
	6	86	56	2	4.27
	7	85	45	0	3.45
	8	90	56	0	4.17
31009					
	1	63	37	0	3.30
	2	76	43	0	3.49
	3	45	35	0	3.69
	4	36	24	0	2.83
	5	42	36	0	3.93
	6	60	45	0	4.11
	7	33	28	0	3.45
	8	67	40	0	3.46
31010					
	1	49	35	0	3.54
	2	27	14	0	1.91
	3	39	27	0	3.06
	4	91	51	0	3.78
	5	46	32	0	3.34
	6	39	30	0	3.40
	7	66	49	4	4.26
	8	50	40	17	4.00

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
31011					
	1	39	25	0	2.83
	2	52	25	0	2.45
	3	49	34	0	3.43
	4	66	37	0	3.22
	5	60	40	0	3.65
	6	37	28	0	3.25
	7	42	27	0	2.95
	8	37	28	0	3.25
31012					
	1	28	22	0	2.94
	2	36	23	0	2.71
	3	44	33	0	3.52
	4	59	41	0	3.77
	5	51	39	0	3.86
	6				
	7	43	30	0	3.23
	8	61	38	0	3.44
31013					
	1	42	34	0	3.71
	2	24	14	0	2.02
	3	39	30	0	3.40
	4	34	27	0	3.27
	5	27	22	0	2.99
	6	42	34	0	3.71
	7	23	21	0	3.10
	8	39	30	1	3.40
31014					
	1	59	36	0	3.31
	2	48	22	0	2.25
	3	59	37	0	3.41
	4				
	5	38	27	0	3.10
	6	37	30	0	3.49
	7	66	44	0	3.83
	8				
31015					
	1	22	20	0	3.02
	2	28	18	0	2.41
	3	24	18	0	2.60
	4	47	35	1	3.61
	5	15	11	0	2.01
	6	36	27	0	3.18
	7	36	29	0	3.42
	8	26	23	4	3.19

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
31016					
	1	20	17	0	2.69
	2	24	17	0	2.45
	3	17	15	0	2.57
	4	40	28	0	3.13
	5	37	28	0	3.25
	6	39	25	0	2.83
	7	38	28	0	3.21
	8	38	29	0	3.33
31017					
	1	16	13	0	2.30
	2	21	13	0	2.01
	3	10	9	0	2.01
	4	27	20	0	2.72
	5	18	14	0	2.33
	6	25	20	0	2.83
	7	16	14	0	2.47
	8	25	21	0	2.97
31018					
	1	45	34	0	3.58
	2	24	18	0	2.60
	3	70	51	0	4.31
	4	39	29	0	3.28
	5				
	6				
	7	62	39	0	3.50
	8	62	48	0	4.31
31020					
	1	24	18	0	2.60
	2	30	15	0	1.94
	3	12	12	0	2.45
	4	19	15	0	2.43
	5	33	22	0	2.71
	6	20	16	0	2.53
	7	29	22	0	2.89
	8	21	16	0	2.47
31021					
	1				
	2	50	23	0	2.30
	3	49	35	0	3.54
	4	31	21	0	2.67
	5	49	35	0	3.54
	6	33	25	0	3.08
	7	65	41	0	3.60
	8	43	30	0	3.23

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
31024					
	1	64	40	0	3.54
	2	70	29	0	2.45
	3	47	30	0	3.09
	4	79	46	0	3.66
	5				
	6	75	42	0	3.43
	7	64	45	0	3.98
	8	73	38	0	3.14
31026					
	1				
	2				
	3	43	28	0	3.02
	4	62	35	0	3.14
	5	29	18	0	2.36
	6	33	25	0	3.08
	7	18	16	0	2.67
	8				

Part II

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
31001						
	1	2	1	0	7	0.13
	2	0	1	0	3	0.08
	3	2	1	0	7	0.21
	4	4	2	0	14	0.32
	5	3	3	1	19	0.44
	6	4	2	1	18	0.33
	7	1	0	1	6	0.13
	8	2	2	1	14	0.25
31002						
	1	5	5	0	25	0.42
	2	0	0	0	0	0.00
	3	2	1	0	7	0.12
	4	7	0	0	14	0.18
	5	6	2	0	18	0.18
	6	1	5	0	17	0.20
	7	4	2	0	14	0.18
	8	2	1	0	7	0.09
31003						
	1	4	2	0	14	0.15
	2	3	6	0	24	0.32
	3	3	3	0	15	0.22
	4	8	1	0	19	0.24
	5	13	2	0	32	0.39
	6	4	3	0	17	0.25
	7	7	3	0	23	0.26
	8	2	4	1	20	0.22
31004						
	1	0	0	0	0	0.00
	2	1	1	0	5	0.14
	3	0	0	0	0	0.00
	4	3	0	0	6	0.09
	5	6	0	0	12	0.23
	6	4	1	0	11	0.14
	7	3	1	0	9	0.15
	8	5	2	0	16	0.23

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
31005						
	1	0	0	0	0	0.00
	2	0	1	0	3	0.38
	3					
	4	3	0	0	6	0.16
	5					
	6	0	1	0	3	0.09
	7	0	1	0	3	0.12
	8	0	1	0	3	0.14
31006						
	1	0	1	0	3	0.06
	2	4	1	0	11	0.17
	3	0	2	0	6	0.07
	4	5	2	0	16	0.15
	5	5	1	0	13	0.18
	6	3	4	0	18	0.24
	7	4	2	0	14	0.18
	8	4	0	0	8	0.08
31008						
	1	2	0	0	4	0.08
	2	3	0	0	6	0.15
	3	3	0	0	6	0.09
	4	4	2	0	14	0.16
	5	1	0	0	2	0.02
	6	2	0	0	4	0.05
	7	1	0	0	2	0.02
	8	5	0	0	10	0.11
31009						
	1	4	5	0	23	0.37
	2	8	0	1	20	0.26
	3	1	4	0	14	0.31
	4	4	2	0	14	0.39
	5	2	2	0	10	0.24
	6	2	2	0	10	0.17
	7	3	2	0	12	0.36
	8	5	2	0	16	0.24
31010						
	1	3	1	0	9	0.18
	2	0	0	0	0	0.00
	3	3	2	0	12	0.31
	4	4	1	0	11	0.12
	5	0	0	0	0	0.00
	6	4	0	0	8	0.21
	7	3	0	1	10	0.15
	8	2	2	0	10	0.20

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
31011						
	1	2	0	0	4	0.10
	2	0	0	0	0	0.00
	3	2	5	0	19	0.39
	4	0	0	0	0	0.00
	5	6	2	1	22	0.37
	6	0	1	0	3	0.08
	7	4	1	0	11	0.26
	8	0	0	0	0	0.00
31012						
	1	0	0	0	0	0.00
	2	2	0	0	4	0.11
	3	2	2	0	10	0.23
	4	3	0	0	6	0.10
	5	3	0	0	6	0.12
	6					
	7	4	1	0	11	0.26
	8	2	0	0	4	0.07
31013						
	1	1	2	0	8	0.19
	2	0	0	0	0	0.00
	3	0	1	0	3	0.08
	4	0	0	0	0	0.00
	5	0	0	0	0	0.00
	6	0	1	0	3	0.07
	7	1	0	0	2	0.09
	8	1	0	0	2	0.05
31014						
	1	2	0	0	4	0.07
	2	2	0	0	4	0.08
	3	1	0	0	2	0.03
	4					
	5	0	0	0	0	0.00
	6	2	1	0	7	0.19
	7	1	1	0	5	0.08
	8					
31015						
	1	0	1	0	3	0.14
	2	0	0	0	0	0.00
	3	0	0	0	0	0.00
	4	1	1	0	5	0.11
	5	0	0	0	0	0.00
	6	0	0	0	0	0.00
	7	2	0	0	4	0.11
	8	0	1	0	3	0.12

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
31016						
	1	0	1	0	3	0.15
	2	0	1	0	3	0.13
	3	1	0	0	2	0.12
	4	1	0	0	2	0.05
	5	3	0	0	6	0.16
	6	0	0	0	0	0.00
	7	2	0	0	4	0.11
	8	2	1	0	7	0.18
31017						
	1	0	1	0	3	0.19
	2	2	0	0	4	0.19
	3	0	0	0	0	0.00
	4	2	0	0	4	0.15
	5	1	0	0	2	0.11
	6	0	1	0	3	0.12
	7	0	0	0	0	0.00
	8	0	0	0	0	0.00
31018						
	1	1	3	0	11	0.24
	2	2	0	0	4	0.17
	3	2	2	0	10	0.14
	4	2	0	0	4	0.10
	5					
	6					
	7	4	0	0	8	0.13
	8	6	1	0	15	0.24
31020						
	1	0	1	0	3	0.13
	2	0	0	0	0	0.00
	3	0	0	0	0	0.00
	4	0	0	0	0	0.00
	5	3	0	0	6	0.18
	6	1	0	0	2	0.10
	7	1	0	0	2	0.07
	8	0	0	0	0	0.00
31021						
	1					
	2	0	0	0	0	0.00
	3	4	0	0	8	0.16
	4	6	0	0	12	0.39
	5	5	3	0	19	0.39
	6	1	0	0	2	0.06
	7	4	0	0	8	0.12
	8	2	0	0	4	0.09

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
31024						
	1	2	0	0	4	0.06
	2	2	0	0	4	0.06
	3	0	2	0	6	0.13
	4	2	0	0	4	0.05
	5					
	6	2	1	0	7	0.09
	7	3	0	0	6	0.09
	8	3	0	0	6	0.08
31026						
	1					
	2					
	3	0	0	0	0	0.00
	4	7	0	0	14	0.23
	5	3	1	0	9	0.31
	6	2	0	0	4	0.12
	7	1	0	0	2	0.11
	8					

Part III

Participant Code	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
31001				
	1	7	7	14.13
	2	0	1	1.08
	3	3	4	7.21
	4	10	9	19.32
	5	14	12	26.44
	6	17	9	26.33
	7	7	6	13.13
	8	9	6	15.25
31002				
	1	1	5	6.42
	2	1	0	1.00
	3	5	3	8.12
	4	3	3	6.18
	5	12	12	24.18
	6	6	12	18.20
	7	3	6	9.18
	8	9	4	13.09
31003				
	1	25	18	43.15
	2	17	21	38.32
	3	10	7	17.22
	4	13	12	25.24
	5	19	12	31.39
	6	19	18	37.25
	7	16	12	28.26
	8	22	6	28.22
31004				
	1	10	7	17.00
	2	3	1	4.14
	3	2	0	2.00
	4	4	0	4.09
	5	5	0	5.23
	6	14	12	26.14
	7	11	9	20.15
	8	9	0	9.23

Participant Code	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
31005				
	1	1	4	5.00
	2	0	0	0.38
	3			
	4	2	4	6.16
	5			
	6	4	4	8.09
	7	4	5	9.12
	8	4	3	7.14
31006				
	1	11	10	21.06
	2	5	5	10.17
	3	6	9	15.07
	4	16	15	31.15
	5	10	6	16.18
	6	16	12	28.24
	7	13	9	22.18
	8	8	0	8.08
31008				
	1	8	12	20.08
	2	5	6	11.15
	3	1	0	1.09
	4	13	15	28.16
	5	4	3	7.02
	6	20	18	38.05
	7	5	3	8.02
	8	11	6	17.11
31009				
	1	14	12	26.37
	2	8	10	18.26
	3	7	8	15.31
	4	10	12	22.39
	5	8	4	12.24
	6	14	9	23.17
	7	11	12	23.36
	8	22	18	40.24
31010				
	1	5	5	10.18
	2	0	1	1.00
	3	5	5	10.31
	4	9	7	16.12
	5	0	0	0.00
	6	4	4	8.21
	7	7	13	20.15
	8	1	2	3.20

Participant Code	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
31011				
	1	10	9	19.10
	2	0	0	0.00
	3	10	11	21.39
	4	3	3	6.00
	5	5	5	10.37
	6	5	0	5.08
	7	6	4	10.26
	8	3	3	6.00
31012				
	1	2	0	2.00
	2	2	0	2.11
	3	1	3	4.23
	4	5	0	5.10
	5	1	1	2.12
	6			
	7	4	0	4.26
	8	4	0	4.07
31013				
	1	3	2	5.19
	2	0	0	0.00
	3	3	3	6.08
	4	2	3	5.00
	5	6	6	12.00
	6	6	6	12.07
	7	1	0	1.09
	8	6	6	12.05
31014				
	1	8	4	12.07
	2	1	0	1.08
	3	1	5	6.03
	4			
	5	3	1	4.00
	6	2	2	4.19
	7	5	6	11.08
	8			
31015				
	1	0	2	2.14
	2	0	0	0.00
	3	1	0	1.00
	4	2	3	5.11
	5	0	0	0.00
	6	2	2	4.00
	7	0	0	0.11
	8	0	0	0.12

Participant Code	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
31016				
	1	2	2	4.15
	2	0	1	1.13
	3	0	0	0.12
	4	0	1	1.05
	5	3	1	4.16
	6	1	0	1.00
	7	5	3	8.11
	8	6	1	7.18
31017				
	1	1	2	3.19
	2	0	0	0.19
	3	0	0	0.00
	4	0	0	0.15
	5	0	0	0.11
	6	1	1	2.12
	7	0	0	0.00
	8	3	0	3.00
31018				
	1	3	6	9.24
	2	0	0	0.17
	3	9	5	14.14
	4	0	6	6.10
	5			
	6			
	7	7	5	12.13
	8	10	4	14.24
31020				
	1	3	1	4.13
	2	0	0	0.00
	3	1	0	1.00
	4	1	0	1.00
	5	3	0	3.18
	6	2	0	2.10
	7	2	0	2.07
	8	1	0	1.00
31021				
	1			
	2	4	0	4.00
	3	4	7	11.16
	4	6	3	9.39
	5	13	14	27.39
	6	3	3	6.06
	7	7	4	11.12
	8	8	6	14.09

Participant Code	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
31024				
	1	7	5	12.06
	2	3	5	8.06
	3	12	12	24.13
	4	13	9	22.05
	5			
	6	1	2	3.09
	7	3	1	4.09
	8	20	9	29.08
31026				
	1			
	2			
	3	0	0	0.00
	4	4	1	5.23
	5	4	6	10.31
	6	0	1	1.12
	7	0	0	0.11
	8	0		

Appendix I
Master Data
Group 4

Part I

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
30103					
	1	106	56	0	3.85
	2	79	49	0	3.90
	3	90	51	0	3.80
	4	96	63	0	4.55
	5	89	50	0	3.75
	6				
	7	97	53	0	3.81
	8	88	61	0	4.60
30104					
	1	100	63	15	4.45
	2	82	54	0	4.22
	3				
	4	68	48	5	4.12
	5	60	41	0	3.74
	6	53	35	0	3.40
	7	56	31	1	2.93
	8	51	36	12	3.56
30105					
	1	44	30	0	3.20
	2	42	30	0	3.27
	3	42	27	0	2.95
	4	47	33	0	3.40
	5	35	26	5	3.11
	6	30	19	0	2.45
	7	33	24	0	2.95
	8	30	23	0	2.97
30107					
	1	30	25	0	3.23
	2	31	38	0	4.83
	3	33	39	0	4.80
	4	32	28	0	3.50
	5	31	22	0	2.79
	6				
	7	10	9	0	2.01
	8	37	29	0	3.37

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
30108					
	1	52	39	0	3.82
	2				
	3				
	4	54	38	0	3.66
	5	44	37	0	3.94
	6	24	19	0	2.74
	7				
	8	68	51	3	4.37
30109					
	1	75	52	0	4.25
	2	56	46	0	4.35
	3	82	63	0	4.92
	4	52	39	0	3.82
	5	33	23	0	2.83
	6	60	41	0	3.74
	7	38	28	0	3.21
	8	59	44	0	4.05
30110					
	1	73	49	0	4.06
	2	48	32	0	3.27
	3	51	35	0	3.47
	4	30	25	0	3.23
	5	54	32	0	3.08
	6	21	12	0	1.85
	7	33	21	0	2.58
	8	51	36	0	3.56
30111					
	1	42	36	0	3.93
	2	29	20	0	2.63
	3	50	37	0	3.70
	4	42	31	0	3.38
	5	53	40	0	3.89
	6	28	22	3	2.94
	7	38	27	0	3.10
	8	53	36	0	3.50
30113					
	1	46	35	0	3.65
	2	48	38	0	3.88
	3	43	30	0	3.23
	4	28	24	0	3.21
	5	54	39	2	3.75
	6	38	26	0	2.98
	7	48	35	0	3.57
	8	45	33	0	3.48

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
30114					
	1	48	32	0	3.27
	2	44	26	0	2.77
	3	65	41	0	3.60
	4	56	38	0	3.59
	5	48	35	0	3.57
	6	24	16	0	2.31
	7	40	26	0	2.91
	8	56	38	0	3.59
30115					
	1	53	37	0	3.59
	2	71	42	0	3.52
	3	53	35	0	3.40
	4	53	36	0	3.50
	5	51	27	0	2.67
	6	29	19	0	2.49
	7	33	18	0	2.22
	8	59	38	0	3.50
30116					
	1	45	31	0	3.27
	2	49	35	0	3.54
	3				
	4	58	41	0	3.81
	5	47	25	0	2.58
	6	21	18	0	2.78
	7				
	8	33	24	0	2.95
30117					
	1	128	57	0	3.56
	2				
	3	43	34	0	3.67
	4	84	52	0	4.01
	5	128	65	0	4.06
	6	88	46	0	3.47
	7	127	65	0	4.08
	8	115	63	0	4.15
30118					
	1	73	43	0	3.56
	2	75	47	0	3.84
	3	60	43	0	3.93
	4	79	54	0	4.30
	5				
	6	39	27	0	3.06
	7	76	45	0	3.65
	8	84	51	0	3.93

Participant Code	Week	Total Words	Different Words	Words not Appearing in Clauses	General Fluency Index
30119					
	1	46	33	6	3.44
	2	47	31	0	3.20
	3	31	25	1	3.18
	4	56	39	0	3.69
	5	54	41	0	3.95
	6	37	24	0	2.79
	7	32	19	13	2.38
	8	38	29	0	3.33
30120					
	1	70	46	0	3.89
	2	74	50	0	4.11
	3	73	48	0	3.97
	4	64	51	0	4.51
	5	54	38	0	3.66
	6	48	30	0	3.06
	7	57	30	0	2.81
	8	58	38	0	3.53
30121					
	1				
	2	27	22	0	2.99
	3				
	4	31	26	0	3.30
	5	24	17	0	2.45
	6	22	17	0	2.56
	7	23	19	0	2.80
	8	41	29	0	3.20
30122					
	1				
	2	18	18	0	3.00
	3				
	4	44	31	2	3.30
	5	25	19	0	2.69
	6	31	16	2	2.03
	7	19	17	0	2.76
	8	32	27	0	3.38

Part II

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
30103						
	1	2	4	0	16	0.15
	2	8	1	0	19	0.24
	3	2	4	0	16	0.18
	4	4	1	3	23	0.24
	5	7	3	0	23	0.26
	6					
	7	7	4	0	26	0.27
	8	3	1	1	13	0.15
30104						
	1	5	2	0	16	0.16
	2	4	2	0	14	0.17
	3					
	4	5	2	0	16	0.24
	5	3	2	0	12	0.20
	6	2	3	0	13	0.25
	7	3	2	0	12	0.21
	8	0	0	0	0	0.00
30105						
	1	2	0	0	4	0.09
	2	0	0	0	0	0.00
	3	0	2	0	6	0.14
	4	2	0	0	4	0.09
	5	2	0	0	4	0.11
	6	1	0	0	2	0.07
	7	1	0	0	2	0.06
	8	5	0	0	10	0.33
30107						
	1	2	1	0	7	0.23
	2	2	0	0	4	0.13
	3	1	0	0	2	0.06
	4	1	2	0	8	0.25
	5	2	0	1	8	0.26
	6					
	7	1	0	0	2	0.20
	8	1	0	0	2	0.05

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
30108						
	1	3	1	0	9	0.17
	2					
	3					
	4	4	3	0	17	0.31
	5	0	2	0	6	0.14
	6	1	0	0	2	0.08
	7					
	8	3	0	0	6	0.09
30109						
	1	4	1	0	11	0.15
	2	4	2	0	14	0.25
	3	4	2	0	14	0.17
	4	2	0	0	4	0.08
	5	1	0	0	2	0.06
	6	0	2	0	6	0.10
	7	3	2	0	12	0.32
	8	5	2	0	16	0.27
30110						
	1	0	0	0	0	0.00
	2	0	0	0	0	0.00
	3	1	0	0	2	0.04
	4	0	0	0	0	0.00
	5	0	0	0	0	0.00
	6	1	0	0	2	0.10
	7	0	1	0	3	0.09
	8	0	0	0	0	0.00
30111						
	1	4	0	0	8	0.19
	2	4	0	0	8	0.28
	3	1	0	0	2	0.04
	4	0	0	0	0	0.00
	5	2	1	0	7	0.13
	6	2	0	0	4	0.14
	7	0	0	0	0	0.00
	8	5	1	0	13	0.25
30113						
	1	2	1	0	7	0.15
	2	1	0	0	2	0.04
	3	3	1	0	9	0.21
	4	3	0	0	6	0.21
	5	7	0	0	14	0.26
	6	2	0	0	4	0.11
	7	1	0	0	2	0.04
	8	5	0	0	10	0.22

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
30114						
	1	5	0	0	10	0.21
	2	1	0	0	2	0.05
	3	2	0	0	4	0.06
	4	3	0	0	6	0.11
	5	6	0	0	12	0.25
	6	2	0	0	4	0.17
	7	1	0	0	2	0.05
	8	6	1	0	15	0.27
30115						
	1	1	0	0	2	0.04
	2	0	0	0	0	0.00
	3	1	0	0	2	0.04
	4	1	2	0	8	0.15
	5	2	0	0	4	0.08
	6	1	0	0	2	0.07
	7	1	0	0	2	0.06
	8	1	0	0	2	0.03
30116						
	1	1	0	0	2	0.04
	2	1	0	0	2	0.04
	3	0	0	0	0	0.00
	4	5	0	0	10	0.17
	5	6	0	0	12	0.26
	6	1	0	0	2	0.10
	7	0	0	0	0	0.00
	8	6	0	0	12	0.36
30117						
	1	5	1	0	13	0.10
	2					
	3	4	2	1	18	0.42
	4	6	1	0	15	0.18
	5	10	5	0	35	0.27
	6	0	7	0	21	0.24
	7	7	5	0	29	0.23
	8	8	5	0	31	0.27
30118						
	1	10	0	0	20	0.27
	2	2	0	0	4	0.05
	3	3	0	0	6	0.10
	4	4	0	0	8	0.10
	5					
	6	2	0	0	4	0.10
	7	3	0	0	6	0.08
	8	3	2	0	12	0.14

Participant Code	Week	Total Category 2 Tokens	Total Category 3 Tokens	Total Category 4 Tokens	Raw Score of Complex Tokens	Token Complexity Score
30119						
	1	1	0	0	2	0.04
	2	0	0	0	0	0.00
	3	0	0	0	0	0.00
	4	0	0	0	0	0.00
	5	4	0	0	8	0.15
	6	0	0	0	0	0.00
	7	0	1	0	3	0.09
	8	1	0	0	2	0.05
30120						
	1	2	1	0	7	0.10
	2	0	2	0	6	0.08
	3	1	4	0	14	0.19
	4	2	1	0	7	0.11
	5	4	3	0	17	0.31
	6	2	2	0	10	0.21
	7	3	2	0	12	0.21
	8	7	0	0	14	0.24
30121						
	1					
	2	0	0	0	0	0.00
	3					
	4	1	0	0	2	0.06
	5	1	0	0	2	0.08
	6	1	0	0	2	0.09
	7	1	0	0	2	0.09
	8	2	1	0	7	0.17
30122						
	1					
	2	1	1	0	5	0.28
	3					
	4	4	0	0	8	0.18
	5	4	1	0	11	0.44
	6	2	0	0	4	0.13
	7	1	0	0	2	0.11
	8	0	1	0	3	0.09

Part III

Participant Code	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
30103				
	1	10	5	15.15
	2	10	3	13.24
	3	9	14	23.18
	4	17	15	32.24
	5	15	6	21.26
	6			
	7	8	12	20.27
	8	15	11	26.15
30104				
	1	19	11	30.16
	2	22	12	34.17
	3		0	
	4	7	16	23.24
	5	10	11	21.20
	6	7	7	14.25
	7	11	7	18.21
	8	2	2	4.00
30105				
	1	2	2	4.09
	2	3	0	3.00
	3	3	1	4.14
	4	3	2	5.09
	5	2	1	3.11
	6	0	0	0.07
	7	0	0	0.06
	8	2	1	3.33
30107				
	1	4	4	8.23
	2	4	4	8.13
	3	2	7	9.06
	4	0	3	3.25
	5	6	7	13.26
	6			
	7	0	0	0.20
	8	3	4	7.05

Participant Code	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
30108				
	1	6	5	11.17
	2			
	3			
	4	5	11	16.31
	5	9	12	21.14
	6	0	0	0.08
	7			
	8	9	14	23.09
30109				
	1	2	9	11.15
	2	13	11	24.25
	3	8	3	11.17
	4	9	5	14.08
	5	9	3	12.06
	6	1	4	5.10
	7	4	4	8.32
	8	12	10	22.27
30110				
	1	0	7	7.00
	2	1	5	6.00
	3	3	3	6.04
	4	4	6	10.00
	5	11	3	14.00
	6	1	0	1.10
	7	11	7	18.09
	8	5	0	5.00
30111				
	1	8	6	14.19
	2	7	6	13.28
	3	2	6	8.04
	4	5	6	11.00
	5	0	4	4.13
	6	2	0	2.14
	7	0	1	1.00
	8	10	13	23.25
30113				
	1	5	3	8.15
	2	8	6	14.04
	3	4	3	7.21
	4	2	1	3.21
	5	4	11	15.26
	6	1	2	3.11
	7	1	6	7.04
	8	3	2	5.22

Participant Code	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
30114				
	1	2	0	2.21
	2	3	3	6.05
	3	4	3	7.06
	4	3	0	3.11
	5	7	3	10.25
	6	2	0	2.17
	7	3	4	7.05
	8	12	6	18.27
30115				
	1	0	0	0.04
	2	0	0	0.00
	3	1	1	2.04
	4	4	3	7.15
	5	3	3	6.08
	6	0	0	0.07
	7	0	0	0.06
	8	1	0	1.03
30116				
	1	14	12	26.04
	2	6	12	18.04
	3			
	4	2	3	5.17
	5	8	6	14.26
	6	0	1	1.10
	7			
	8	3	3	6.36
30117				
	1	24	21	45.10
	2			
	3	16	30	46.42
	4	18	15	33.18
	5	48	33	81.27
	6	38	36	74.24
	7	35	31	66.23
	8	38	40	78.27
30118				
	1	12	4	16.27
	2	6	6	12.05
	3	9	1	10.10
	4	3	1	4.10
	5			
	6	1	0	1.10
	7	1	0	1.08
	8	1	5	6.14

Participant Code	Week	Complexity Score of Clauses	Non-canonical Clause Score	Total Complexity Score
30119				
	1	6	6	12.04
	2	4	3	7.00
	3	4	6	10.00
	4	6	0	6.00
	5	6	10	16.15
	6	0	0	0.00
	7	1	1	2.09
	8	2	1	3.05
30120				
	1	9	10	19.10
	2	16	19	35.08
	3	22	19	41.19
	4	10	10	20.11
	5	21	22	43.31
	6	12	12	24.21
	7	5	7	12.21
	8	12	15	27.24
30121				
	1			
	2	5	6	11.00
	3			
	4	2	0	2.06
	5	3	3	6.08
	6	0	0	0.09
	7	3	0	3.09
	8	6	6	12.17
30122				
	1			
	2	4	3	7.28
	3			
	4	4	0	4.18
	5	7	8	15.44
	6	3	0	3.13
	7	1	0	1.11
	8	0	1	1.09

Appendix J
Transcriptions of Text

Sample 1a:
Group 110
Student 04
Week 5
Unmarked Transcription

Am spring break habe ich gearbeitet. Ich habe nur Dienstag und Mittwoch nicht gearbeitet. Meine Schwester hat zu mein Hause gekommen. Meine Schwester und ich sind zu Hamilton Pool gegangen. Die Wasser war sehr kalt. Nach wir sind zu mein Hause zurückgekommen, wir Bowling gegangen haben. Meine Schwester ist zu Hallettsville Donnerstag Morgen gegangen. Ich habe Samstag Hausaufgaben gemacht. Mein Spring break war klein Spaß.

Sample 1b:
Group 110
Student 04
Week 5
Transcription Marked for Complex Words

Am spring break habe ich gearbeitet. Ich habe nur Dienstag und Mittwoch nicht gearbeitet. Meine Schwester hat zu mein Hause gekommen. Meine Schwester und ich sind zu Hamilton Pool gegangen. Die Wasser war sehr kalt. Nach wir sind zu mein Hause zurückgekommen, wir Bowling gegangen haben. Meine Schwester ist zu Hallettsville Donnerstag Morgen gegangen. Ich habe Samstag Hausaufgaben gemacht. Mein Spring break war klein Spaß.

Sample 1c:
Group 110
Student 04
Week 5
Transcription Marked for Complex Clauses

Am spring break habe ich gearbeitet. Ich habe nur Dienstag und Mittwoch nicht gearbeitet. Meine Schwester hat zu mein Hause gekommen. Meine Schwester und ich sind zu Hamilton Pool gegangen. Die Wasser war sehr kalt. Nach wir sind zu mein Hause zurückgekommen, wir Bowling gegangen haben. Meine Schwester ist zu Hallettsville Donnerstag Morgen gegangen. Ich habe Samstag Hausaufgaben gemacht. Mein Spring break war klein Spaß.

Comment: 3
Comment: 1
Comment: 1
Comment: 1
Comment: 1
Comment: 1
Comment: 1

Sample 2a:
Group 201
Student 11
Week 3
Unmarked

Ich studiere Kunstgeschichte um der Uni, unid ich will in ein Museum arbeiten. Aber nicht hier, sondern möchte lieber ich in Schottland arbeiten (ja, Schottland wieder!). New York wird auch gut sein. Wenn kann ich reisen, werde ich glücklich sein! Hmm... was sagen was sagen? Ja, Kunstgeschichte, ich möchte liebe ein Kunstlerin sein, aber sie machen kein Geld. So ich werde ein Kunstrestorer sein.

Sample 2b:
Group 201
Student 11
Week 3
Transcription Marked for Complex Words

Ich studiere Kunstgeschichte um der Uni, unid ich will in ein Museum arbeiten. Aber nicht hier, sondern möchte lieber ich in Schottland arbeiten (ja, Schottland wieder!). New York wird auch gut sein. Wenn kann ich reisen, werde ich glücklich sein! Hmm... was sagen was sagen? Ja, Kunstgeschichte, ich möchte liebe ein Kunstlerin sein, aber sie machen kein Geld. So ich werde ein Kunstrestorer sein.

Sample 2c:
Group 201
Student 11
Week 3
Transcription Marked for Complex Clauses

Ich studiere Kunstgeschichte um der Uni, unid ich will in ein Museum arbeiten. Aber nicht hier, sondern möchte lieber ich in Schottland arbeiten (ja, Schottland wieder!). New York wird auch gut sein. Wenn kann ich reisen, werde ich glücklich sein! Hmm... was sagen was sagen? Ja, Kunstgeschichte, ich möchte liebe ein Kunstlerin sein, aber sie machen kein Geld. So ich werde ein Kunstrestorer sein.

Comment: 1
Comment: 1
Comment: 1
Comment: 1
Comment: 2
Comment: 1
Comment: 1

Sample 3a:
Group 310
Student 01
Week 4
Unmarked

In meinem Freizeit lesen ist mir gefehlt. Wenn ich zu die Uni gehe, ich bringe gern ein Buch mit. Gestern hab' ich etwas lustig gelesen. Es war eine Liste von Charakterzuge von den typisch 'Grad Student.' In die liste ich habe gelesen, daß kleiderwaschen...

Sample 3b:
Group 310
Student 01
Week 4
Transcription Marked for Complex Words

In meinem Freizeit lesen ist mir gefehlt. Wenn ich zu die Uni gehe, ich bringe gern ein Buch mit. Gestern hab' ich etwas lustig gelesen. Es war eine Liste von Charakterzuge von den typisch 'Grad Student.' In die liste ich habe gelesen, daß kleiderwaschen...

Sample 3c:
Group 310
Student 01
Week 4
Transcription Marked for Complex Clauses

In meinem Freizeit lesen ist mir gefehlt. Wenn ich zu die Uni gehe, ich bringe gern ein Buch mit. Gestern hab' ich etwas lustig gelesen. Es war eine Liste von Charakterzuge von den typisch 'Grad Student.' In die liste ich habe gelesen, daß kleiderwaschen...

Comment: 3
Comment: 1
Comment: 3
Comment: 3

Sample 4a:
Group 301
Student 04
Week 6
Unmarked

Männern und Frauen sind nicht wirklich anders. Es ist nur, daß Leuten betonen die Unterschieden. Es ist wie „Race Relations“ in Amerika. Es ist mir egal ob irgendein Mensch ist schwarz oder weiss, oder ein Mann oder ein Frau, nur was er / sie tut und sagt. Leute soll nicht andere Menschen beurteilen.

Sample 4a:
Group 301
Student 04
Week 6
Transcription Marked for Complex Words

Männern und Frauen sind nicht wirklich anders. Es ist nur, daß Leute betonen die Unterschieden. Es ist wie „Race Relations“ in Amerika. Es ist mir egal, ob irgendein Mensch ist schwarz oder weiss, oder ein Mann oder ein Frau, nur was er / sie tut und sagt. Leute soll nicht andere Menschen beurteilen.

Sample 4a:
Group 301
Student 04
Week 6
Transcription Marked for Complex Clauses

Männern und Frauen sind nicht wirklich anders. Es ist nur, daß Leute betonen die Unterschieden. Es ist wie „Race Relations“ in Amerika. Es ist mir egal, ob irgendein Mensch ist schwarz oder weiss, oder ein Mann oder ein Frau, nur was er / sie tut und sagt. Leute soll nicht andere Menschen beurteilen.

Comment: 3
Comment: 3
Comment: 1

Appendix K
Procedures for Conducting Text Analyses

Complex Tokens

In this study lexical complexity was considered as the sum of all complex words (referred to as *complex tokens*[1]) that occurred within a written product. To be scored as a complex token, each identified token required pragmatic/grammatical feasibility and a degree of accuracy in use. Accuracy of use was predominantly related to verbs with additional rules of placement, such as separable verbs. Such verbs occupy two positions in canonical word order – second position (following the subject), and clause-end for the prefix. The rules for token identification are given here:

Second Degree Tokens. The most basic of all complex tokens were labeled as "second degree" tokens. These each received a score of 2 points per occurrence regardless of how often the same token repeated in an entry. These tokens were considered the "most basic" of complex tokens, since none of these influence word order of the rest of the clause (the first token, *compound/separable verbs*, comes the closest, by placing either the prefix of a separable verb, or the infinitive verb in a compound clause – i.e., a clause where an auxiliary verb is present – at clause-end position. Those units which received this score were:

1. Compound/Separable verbs – being any verb (conjugated, participle or infinitive) with either a separable prefix (usually a preposition or adjective, and sometimes a noun or another verb – often referred to as a *particle*, cf.

[1] Note: Lexically complex items in this study did not include gender endings on nouns, articles, adjectives, or plural forms.

Clahsen, 1984) or a verb which works in tandem with another verb (excluding modal or other auxiliary verb in this study)[2], such as *gehen* (to go) as in, *wir gehen heute spazieren* (We're going walking today).

2. Demonstrative pronouns (not demonstrative adjectives) – which are either a definite or indefinite article having an implied, referent (often an antecedent). In German, demonstrative pronouns are very similar in appearance to relative pronouns, with the exception that demonstrative pronouns do not cause finite verb forms to permute to clause/sentence-final position as do relative pronouns.
3. Nouns formed from verbs (i.e., gerunds) – all verbs which act as nouns were identified as such by interactions with either the main verb of the clause/sentence or by prepositional phrases in which the gerund might have been located.
4. Adjectival nouns – adjectival nouns were identified by a similar method to gerunds (above).
5. Accurate forms of past and present participles of verbs – "accurate" meaning ending in "-d" in the case of the present participle, and reasonable accuracy of form[3] German has strong conjugation only, not position. Past participles of

[2] Presence of a compound verb was not sufficient to count a second degree token, the verbal units required accuracy of placement within the clause, such as the prefixes of a separable verb occurring at clause end in canonical word order.

[3] German has three forms of participles:

1. Weak: which leave the stem of the verb unchanged and end in "-t'; this pattern is reflected in English regular verbs which end in "-ed" such as "I place" → "I have placed."
2. Strong: which cause changes to the stem and typically end in "-en." This resembles the English irregular verbs in past participle form whose stems change, such as "I speak" → "I have spoken."

verbs almost always are/approach clause/sentence-final position, but since lexical complexity looks at existence of discrete items only, position of the participle was not considered. Present participles have no such restriction for placement. All past and present participles can be declined as adjectives, but such, also being identified as "second degree," were not distinguished from accurate past/present participles.

6. Conjugated imperfect verbs – this includes all verbs except the very common imperfect verbs *war* (to be – was) or *hatte* (to have) and all their conjugations. Like the participles, there must be a reasonable resemblance of participant-written forms to the actual imperfect forms of each German verb.
7. Adverbs – all adverbs excluding adverbial expressions of time and the following high-frequency adverbs:
    i. *sehr* – (very)
    ii. *zu* – (too)
    iii. *viel* – (many/much)
    iv. *wirklich* – (really/truly)
    v. *auch* – (also/too)[4]
8. Coordinating Conjunctions – three of the five traditional conjunctions (*oder*, *sondern*, or *denn)* were counted as complex tokens. When used in strings, lists or when the verb in a coordinated clause was deleted through ellipsis, these conjunctions were not included. The two, high-frequency conjunctions,

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3. Mixed: which cause changes to the stem (characteristic of strong verbs) but typically end in "-t" (characteristic of weak verbs).

[4] See the *Notes* section (end of this chapter) for a brief description of how some participants mistook use of another word for *auch* and how the mistake was handled.

(*und* "and" and *aber* "but") were not included among the complex lexical units.

9. Infinitive Marker, *zu*, meaning "to" – whenever participants used more than one main verb in a clause (or the modal verb *mögen* plus another main verb) and marked the secondary verb as an infinitive by inserting the infinitive marker *zu*, it was scored as a second degree token. This was also the case when participants attempted an infinitive expressions, such as *um…zu* (in order to). However, only the marker *zu* was required for scoring the token, not the introductory marker (i.e., *um*, "in order," *ohne*, "without," or *statt*, "instead").

Third Degree Tokens. More complex (and less frequent) than second degree items, third degree tokens all required subordinate word order. These tokens (each receiving a score of three points) consisted of the following:

1. Subordinating Conjunctions – subordinate conjunctions all cause their respective finite (conjugated) verb to permute to the end of the clause. For this portion of the study (as mentioned with past participles), only existence of the conjunction was required for scoring, not whether or not the subordinating conjunction was used successfully (i.e., whether or not the writer finished a clause/sentence with the conjugated verb).
2. Interrogative Conjunctions – in addition to subordinating conjunctions, there are conjunctive markers which act like subordinating conjunctions (that is, they also cause permutation of the conjugated verb to clause-final position).

There were two types selected for inclusion in the study – interrogative adjectives, such as, *wie, warum,* or *wann* (how, why, when), and interrogative pronouns, such as *wer, was,* or *welch-* (who, what, which) – each of which required usage in indirect discourse only, since verb-end permutation does not occur in direct interrogation, for example:

Direct Interrogation: *Wann gehst du heute nach Hause?*
(When are you going home today?)

Here, there is verb inversion (the subject and the verb are inverted) consistent with interrogation.

Indirect Discourse: *Ich weiß nicht, wann du heute nach Hause gehst.*
(I don't know when you are going home today.)

Here, the second clause is in subordinate word order, being introduced by the interrogative adjective, *wann*.

Fourth Degree Tokens. The only type of token labeled as fourth degree (representing the most complex token considered in this study) was the relative pronoun. Unlike its predecessors, this fourth degree token required correct permutation of the conjugated verb to clause/sentence-final position to be considered to receive a score of four. This requirement was made to prevent mistaking relative pronouns with demonstrative pronouns. As mentioned earlier demonstrative pronouns and relative pronouns are similar in appearance (with the exception of the genitive case and the dative plural), but not in verb permutation (i.e., demonstrative pronouns do not require the conjugated verb to permute to clause-final position). For this reason, whenever a potential relative pronoun/demonstrative pronoun was found, verb placement was

considered for accurate classification (unless the relative pronoun was in the genitive case or the dative plural – none of which occurred). When conjugated verb permutation existed, the subsequent pronoun was scored as a relative pronoun; when no such permutation existed, the appropriate pronoun was scored as a demonstrative pronoun (a second degree token). In addition to the differentiation of relative/demonstrative pronouns, there was the necessity to distinguish between the word *das* (a neuter relative or demonstrative pronoun) and dass/daß (a subordinating conjunction). Whenever the subordinating conjunction *dass/daß* ("that," spelled with either "ss" or "ß" by participants) was used where a relative pronoun should have been, it was scored as subordinating conjunction, not as a relative pronoun. This was done despite meaning since it impossible to infer author intention (whether a writer intended a relative pronoun but used a subordinating conjunction by mistake). Additionally, participants occasionally formed the erroneous *das* (with one "s") where dass/daß should have been. Whenever this form occurred, it could be considered as either a relative pronoun or as a subordinating conjunction, dependent upon the meaning of the conjoined clauses for which *das* was conjunctive. Differentiation between the two required the existence (actual or contextually implied) of a noun referent to which a relative pronoun could refer. If no such referent was found, and the "das" in question appeared only to conjoin clauses, it was scored as a subordinating conjunction. Again, when verb-end permutation did not exist, such a "das" was considered a demonstrative pronoun.

Syntactic Complexity

For this study, syntactic complexity in writing was analyzed at the clause level; a clause was considered to increase in complexity every time any type of non-canonical (subject, verb, object or other – SVO) word order was used by participants, including:

Verb, Subject, Object or Other – VSO

Object or Other, Verb, Subject – OVS

Subject, Object or Other, Verb – SOV

Compound verbal clauses (as in subject, verb object verb or verbal particle – SVOV) were also considered to be more complex than SVO order. Each of these different types of word order was considered to be of different levels of complexity, and like the complex tokens, each complex clause received a numeric score. In order to score the complexity of clauses (such as the clause-end position of the main verb in subordinate clauses), a degree of grammatical accuracy was additionally required, specifically accuracy of placement (similar to fourth degree tokens) of the main and other verbs within the clause. Those clause types which were considered for this study are given here:[5]

1. Canonical clauses with a single, non-particle verb – these were the most basic of sentences, requiring only a subject and a conjugated verb in canonical order, which is subject(s) first, conjugated verb second, then other elements (such as objects). Such constructions received no score.

[16]It should be noted that whenever ellipsis of a subject or an auxiliary (or similar) verb was accurately used across clauses, each sub-clause received a complexity score which contributed to the respective main clause's complexity score.

2. Canonical clauses with verb-end/particle(s) – as mentioned under the heading of complex tokens, second degree tokens #1, there are certain verbs which contain separable prefixes (*particles*). These, together with finite auxiliary verbs and compound verbal complexes (as in verbs ending with *-gehen*) require what Clahsen (1984) describes as a movement of the "nonfinite parts of discontinuous verbal elements… into sentence-final position" (p. 224), or into clause-final position. When either a verb particle or an infinitive verb permutes to that clause-final position, the resulting clause received a score of one point.[6,7]
3. Inversion (including commands/questions) – inversion requires finite verbs to precede their respective subjects. All such accurately written clauses received a score of two points.[8]
4. Infinitive clauses – accurate infinitive clauses occurred either as typical infinitive phrases, as complement to another finite verb, or with adverbial infinitive clauses, as in *um…zu*, *ohne…zu*, *(an)statt…zu* (*in order to*, *without*, and *instead of* respectively). All such constructions received a score of two points.

[6] This permutation of verbal elements to clause/sentence-final position is also a feature of subordination, the difference being that subordination permutes finite verbs into clause/sentence-final position. This type of construction received a lower score than such subordinate-ordered clauses.
[7] When participants attempted to permute a finite verb while using the verbs, "sein, brauchen, wünschen, or lieben" as the finite (conjugated) element, the resulting clause was not scored. *Gehen*, however, plus another verb, however, was scored.
[8] There was no attempt to discriminate between inversion which occurred as a result of questions and inversion which occurred from other elements (such as adverbial expressions) in sentence/clause-initial position.

5. Inversion with particle(s) – clauses with inversion could also contain particles or auxiliary verbs which resulted in an extra point for clause complexity etc. All such clauses received a score of three points.
6. Subordination (word order SOV) – when any of the third degree tokens occurred, finite verb placement (though not necessarily tense or conjugation) was observed. When the said finite was accurately placed in clause-final position, the resulting clause(s) received a score of three points.
7. Subordination with multiple verbs – clause category 2 described how auxiliary verbs affect other (formerly finite) verbs within a clause. When subordination occurs within clauses where an auxiliary verb (or compound verbal complex) has already caused infinitive verb to clause-final permutation, such that the auxiliary (or finite compound verbal complex) permutes to clause-final position, the resulting clause received a score of four points.

Clause Identification

The overarching rule which governed all other actions was:

- A clause is defined as a unit containing an identifiable – though not necessarily conjugated – verb excluding participles.

Rules for identification of various types of clauses are given here:

Infinitive Clauses

- All infinitive constructions are scored as separate clauses with the following exceptions:

    1. When the infinitive clause is the complement of a modal verb (an ungrammatical construction), for example:

        **Ich muss zu gehen* (I must to go)

    2. When the infinitive expression acts as either the subject or an object of the sentence, for example:

        Z*u gehen macht kein Spaß* (To go is not fun)

- In the event that an infinitive clause requires "zu" (to) for grammaticality, the "zu" must be written by the participant for it to be counted as a separate clause, for example:

    Ich arbeite, um Geld zu verdienen (I work in order to earn money)

- If "*zu*" is unwritten, the infinitive construction will be considered an ellipsis and will not be considered as a separate clause (since additional clause intention cannot be determined without access to each author), for example:

    Wir sind hier, zu leben und sterben (We are here to live and die)

This is scored as two clauses, not three; the second infinitive, "und sterben" is not introduced by *zu*. In the event that the infinitive clause is either grammatically incorrect or unnecessary, but "zu" is nevertheless present, it may be scored as an individual clause if other conjunctive elements warrant it, such as:

Ich weiß nicht warum zu gehen (I don't know why to go)

This is scored as 2 clauses by virtue of the indirect question conjunction "warum" (why).

Compound Clauses

- Compound clauses resulting from an auxiliary verb (i.e., where multiple infinitive or participle verbs complement the head auxiliary verb) are not considered separate clauses. This means that past tense sentences, for example, with multiple participles can only count as separate clauses when separately-written helping verbs occur. The following two examples illustrate this:

  Ich bin zuerst zum Supermarkt gegangen, und dann bin nach Hause gefahren.
  (I have gone to the supermarket first and then have driven home)

  This sentence has the same conjugated verb "bin" (am) for both participles. Since the first rule of clause identification states that *a clause is defined as a unit containing an identifiable – though not necessarily conjugated – verb excluding participles*, the above sentence is considered to consist of two clauses. By contrast, the following sentence does not:

  Ich bin zuerst zum Supermarkt gegangen, und dann nach Hause gefahren.
  (I have gone to the supermarket first and then driven home)[9]

[9] Although the English translation of the German sentence in ungrammatical, it is a literal translation of a grammatical German sentence.

This sentence has the conjugated verb “bin,” (am) which acts an auxiliary verb for both the participles “gegangen” (gone) and “gefahren” (driven). The sentence is identical to the previous one, except that the auxiliary verb has been deleted through ellipsis in the second clause. Since the auxiliary verb does not occur twice, it violates this study’s first rule of clause identification (*a clause is defined as a unit containing an identifiable (though not necessarily conjugated) verb excluding participles*), and is therefore counted as only one clause, not two.

- Ellipsis of subjects when there are multiple conjugated verbs may count as separate clauses only if the objects or complements (if any) of those verbs are listed separately and are separate objects or complements, for example:

  Ich kaufe Obst und kaufe ein Buch
  (I am buying fruit and buying a book)

  The subject “ich” (I) has been deleted from the second clause (ellipsis), but the verb “kaufe” (buy) occurs along with both the direct objects “Obst” and “Buch.” This sentence, therefore, consists of two clauses.

  Ich kaufe Obst und ein Buch
  (I am buying fruit and a book)

  Again, the subject “ich” (I) has been deleted from the second part of the sentence, but the verb “kaufe” (buy) has also been removed (ellipsis). Only the direct object “Buch” remains. This sentence consists of only one clause.

- Where no distinguishable verb can be found, no clause will be marked. All elements that do not fall into clauses (as determined by the above rules) are labeled as "words that do not contribute to clauses." Such 'non-clauses' occurred either:

    1. As the 10-minute time period expired and a participant started a new sentence but did not complete it (or at least reach the verb)

    2. As an elaborative complement (i.e., a string of words, possibly elaborating on a previous sentence). In this case, the sentence clearly ends prior to the string (i.e., there is a period written by the student prior to the string, and the string is written as its own sentence, as in:

        Ich kann leider nicht gehen. <u>*Sehr schade.*</u>
        (I can not go unfortunately. A real shame.)

These non-clauses were not included in the text analyses since the placement of the verb was requisite for determining clause accuracy; without a verb, clause complexity could not be determined.

- Verb conjugation/tense obfuscation which arises as the result of mood (e.g., a participant uses an imperfect verb in a present tense clause because the mood is subjunctive), does not influence clause accuracy.
- Punctuation, Spelling, Adverbial Expressions, umlaut presence/absence, and Lexical Errors do not determine accuracy of clauses.
- When participants add parenthetical information after any verbs (always infinitive) that occur in clause-final position, the clause may be considered accurate in canonical word-ordered clauses, but not in non-canonical word-ordered clauses employing subordination or relativization (SOV word order), for example:

    Er soll heute zur Arbeit gehen <u>*nach der Schule*</u>
    (Er should go to work today <u>after school)</u>

This is considered an accurate canonical clause since the verb is correctly placed in the second position behind the subject (SVO).

Ich weiß nicht, ob er heute zur Arbeit geht <u>nach der Schule</u>
(I don't know if he is going to work today <u>after school</u>)

The first clause "Ich weiß nicht) is an accurate canonical clause, but the second clause, which is in subordinate word order (SOV) is inaccurate, since the verb is not in clause/sentence-end position.

- In subordinate word order, a subordinate marker (subordinating conjunction, relative pronoun, indirect question word, etc.) *must* be present. If word order is correct for subordination (for example) without the appropriate marker, it is counted as incorrect. Consider the following sentence:

  Das ist alles, wir machen müssen (That is all we must do)

  This first clause "das ist alles" is an accurate canonical clause since the main verb is in second position (following the subject "das"). The second clause, however, is not accurate, since it is missing the interrogative conjunction "was" (that/which).

<u>A Note About *Auch* (Also)</u>

Some participants errantly wrote *also* (a conjunctive adverb meaning "thus, thusly, "therefore," and "hence." when intending to write *auch*. When *also* was correctly used, it received points as an adverb; when incorrectly used, i.e., used as *auch*, it was treated as *auch*, receiving no points).

Appendix L
Correlation Statistic Results Tables for All Groups

Group 1: Correlations Assigned Topics

	Interest in Assigned Topics	Confidence: Assigned Topics	Fluency: Assigned Topics	Complexity: Assigned Topics
Performance Orientation	-.025	**.346(*)**	.181	.017
Sig.	.865	**.016**	.218	.911
N	48	48	48	48
Mastery Orientation	.121	.272	.222	**.302(*)**
Sig.	.412	.062	.129	**.037**
N	48	48	48	48
Avoidance Orientation	-.051	-.025	.135	-.178
Sig.	.731	.864	.360	.226
N	48	48	48	48
Experience Writing in a Journal	.051	.094	.160	**.299(*)**
Sig.	.724	.512	.261	**.033**
N	51	51	51	51
Interest in Assigned Topics		**.547(**)**	.188	.048
Sig.		**.000**	.168	.726
N		55	55	55
Confidence: Assigned Topics			**.444(**)**	.221
Sig.			**.001**	.105
N			55	55
Fluency: Assigned Topics				**.555(**)**
Sig.				**.000**
N				55

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Group 1: Correlations
Self-Selected Topics

	Interest in Self-Selected Topics	Confidence: Self-Selected Topics	Fluency: Self-Selected Topics	Complexity: Self-Selected Topics
Performance Orientation	.529(**)	**.574(**)**	.207	**.321(*)**
Sig.	.000	**.000**	.177	**.034**
N	44	44	44	44
Mastery Orientation	.165	**.420(**)**	**.432(**)**	**.634(**)**
Sig.	.284	**.005**	**.003**	**.000**
N	44	44	44	44
Avoidance Orientation	.041	**.360(*)**	.188	-.053
Sig.	.790	**.016**	.222	.735
N	44	44	44	44
Experience Writing in a Journal	-.264	.062	.256	.220
Sig.	.073	.679	.082	.137
N	47	47	47	47
Interest in Assigned Topics		**.700(**)**	**.391(**)**	.250
Sig.		**.000**	**.005**	.077
N		51	51	51
Confidence: Assigned Topics			**.545(**)**	**.336(*)**
Sig.			**.000**	**.016**
N			51	51
Fluency: Assigned Topics				**.569(**)**
Sig.				**.000**
N				51

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Group 2: Correlations
Assigned Topics

	Interest in Assigned Topics	Confidence: Assigned Topics	Fluency: Assigned Topics	Complexity: Assigned Topics
Performance Orientation	.121	.033	.122	-.131
Sig.	.330	.790	.326	.289
N	67	67	67	67
Mastery Orientation	.116	-.090	.127	.030
Sig.	.350	.467	.305	.812
N	67	67	67	67
Avoidance Orientation	-.024	-.076	.155	-.087
Sig.	.848	.543	.209	.483
N	67	67	67	67
Experience Writing in a Journal	-.022	-.085	**.235(*)**	**.251(*)**
Sig.	.847	.460	**.039**	**.027**
N	77	77	77	77
Interest in Assigned Topics		**.479(**)**	**.368(**)**	.064
Sig.		**.000**	**.001**	.580
N		77	77	77
Confidence: Assigned Topics			**.230(*)**	.034
Sig.			**.044**	.770
N			77	77
Fluency: Assigned Topics				**.512(**)**
Sig.				**.000**
N				77

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Group 2: Correlations
Self-Selected Topics

	Interest in Self-Selected Topics	Confidence: Self-Selected Topics	Fluency: Self-Selected Topics	Complexity: Self-Selected Topics
Performance Orientation	.040	.041	.169	-.074
Sig.	.747	.745	.172	.553
N	67	67	67	67
Mastery Orientation	-.004	-.169	.063	.005
Sig.	.977	.173	.612	.971
N	67	67	67	67
Avoidance Orientation	-.081	**.264(*)**	-.052	-.132
Sig.	.514	**.031**	.673	.288
N	67	67	67	67
Experience Writing in a Journal	-.064	-.080	.206	.012
Sig.	.579	.488	.072	.917
N	77	77	77	77
Interest in Assigned Topics		**.376(**)**	**.315(**)**	.160
Sig.		**.001**	**.005**	.164
N		77	77	77
Confidence: Assigned Topics			.169	.131
Sig.			.142	.255
N			77	77
Fluency: Assigned Topics				**.481(**)**
Sig.				**.000**
N				77

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Group 3: Correlations
Assigned Topics

	Interest in Assigned Topics	Confidence: Assigned Topics	Fluency: Assigned Topics	Complexity: Assigned Topics
Performance Orientation	-.209	-.112	**.253(*)**	**.313(**)**
Sig.	.070	.336	**.028**	**.006**
N	76	76	76	76
Mastery Orientation	.200	.075	**.241(*)**	**.336(**)**
Sig.	.084	.518	**.036**	**.003**
N	76	76	76	76
Avoidance Orientation	-.042	-.002	**-.279(*)**	**-.479(**)**
Sig.	.720	.983	**.015**	**.000**
N	76	76	76	76
Experience Writing in a Journal	.230(*)	.175	.037	-.074
Sig.	.046	.130	.751	.526
N	76	76	76	76
Interest in Assigned Topics		**.568(**)**	.045	-.161
Sig.		**.000**	.696	.157
N		79	79	79
Confidence: Assigned Topics			.198	.032
Sig.			.080	.781
N			79	79
Fluency: Assigned Topics				**.560(**)**
Sig.				**.000**
N				79

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Group 3: Correlations
Self-Selected Topics

	Interest in Self-Selected Topics	Confidence: Self-Selected Topics	Fluency: Self-Selected Topics	Complexity: Self-Selected Topics
Performance Orientation	-.128	-.113	**.231(*)**	**.312(**)**
Sig.	.276	.337	**.048**	**.007**
N	74	74	74	74
Mastery Orientation	.081	.001	**.313(**)**	**.346(**)**
Sig.	.493	.992	**.007**	**.003**
N	74	74	74	74
Avoidance Orientation	-.030	.086	**-.299(**)**	**-.402(**)**
Sig.	.797	.468	**.010**	**.000**
N	74	74	74	74
Experience Writing in a Journal	.077	-.024	.206	-.117
Sig.	.515	.842	.078	.322
N	74	74	74	74
Interest in Assigned Topics		**.322(**)**	.065	.159
Sig.		**.004**	.576	.166
N		77	77	77
Confidence: Assigned Topics			.051	**.246(*)**
Sig.			.662	**.031**
N			77	77
Fluency: Assigned Topics				**.560(**)**
Sig.				**.000**
N				77

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Group 4: Correlations
Assigned Topics

	Interest in Assigned Topics	Confidence: Assigned Topics	Fluency: Assigned Topics	Complexity: Assigned Topics
Performance Orientation	-.248(*)	-.212	.044	**.315(**)**
Sig. (2-tailed)	.043	.085	.726	**.009**
N	67	67	67	67
Mastery Orientation	-.259(*)	.097	**.413(**)**	**.413(**)**
Sig. (2-tailed)	.034	.436	**.001**	**.001**
N	67	67	67	67
Avoidance Orientation	-.103	**-.381(**)**	**-.351(**)**	-.158
Sig. (2-tailed)	.408	**.001**	**.004**	.201
N	67	67	67	67
Experience Writing in a Journal	.284(*)	.133	**.334(**)**	**.350(**)**
Sig. (2-tailed)	.020	.284	**.006**	**.004**
N	67	67	67	67
Interest in Assigned Topics		**.386(**)**	.142	.047
Sig. (2-tailed)		**.001**	.251	.705
N		67	67	67
Confidence: Assigned Topics			**.371(**)**	.228
Sig. (2-tailed)			**.002**	.064
N			67	67
Fluency: Assigned Topics				**.519(**)**
Sig. (2-tailed)				**.000**
N				67

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Group 4: Correlations
Self-Selected Topics

	Interest in Self-Selected Topics	Confidence: Self-Selected Topics	Fluency: Self-Selected Topics	Complexity: Self-Selected Topics
Performance Orientation	-.168	-.172	.017	.081
Sig.	.187	.178	.896	.526
N	63	63	63	63
Mastery Orientation	-.333(**)	-.087	**.330(**)**	**.400(**)**
Sig.	.008	.498	**.008**	**.001**
N	63	63	63	63
Avoidance Orientation	.150	-.115	**-.437(**)**	**-.450(**)**
Sig.	.240	.368	**.000**	**.000**
N	63	63	63	63
Experience Writing in a Journal	.008	.128	**.361(**)**	**.446(**)**
Sig.	.953	.318	**.004**	**.000**
N	63	63	63	63
Interest in Assigned Topics		.167	-.012	-.172
Sig.		.192	.924	.178
N		63	63	63
Confidence: Assigned Topics			.054	.139
Sig.			.672	.278
N			63	63
Fluency: Assigned Topics				**.365(**)**
Sig.				**.003**
N				63

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Appendix M
MANOVA Statistic Results Tables for All Groups

Group 1: Multivariate Analysis of Variance (MANOVA) Collective Main Effects on Fluency and Complexity

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Fluency Index	19.987(a)	16	1.249	5.571	.000
	Complexity score	3628.069(b)	16	226.754	1.283	.226
Intercept	Fluency Index	383.613	1	383.613	1710.620	.000
	Complexity score	4974.267	1	4974.267	28.153	.000
Topic Control	Fluency Index	1.494	1	1.494	**6.662**	**.011**
	Complexity score	142.798	1	142.798	.808	.371
Interest	Fluency Index	1.811	5	.362	1.615	.164
	Complexity score	119.997	5	23.999	.136	.984
Confidence	Fluency Index	6.390	5	1.278	**5.699**	**.000**
	Complexity score	952.250	5	190.450	1.078	.378
Interest* Confidence	Fluency Index	2.641	5	.528	**2.355**	**.047**
	Complexity score	833.961	5	166.792	.944	.457
Error	Fluency Index	19.959	89	.224		
	Complexity score	15725.208	89	176.688		
Total	Fluency Index	1344.534	106			
	Complexity score	40696.530	106			
Corrected Total	Fluency Index	39.946	105			
	Complexity score	19353.277	105			

a R Squared = .500 (Adjusted R Squared = .411)
b R Squared = .187 (Adjusted R Squared = .041)

Group 2: Multivariate Analysis of Variance (MANOVA)
Collective Main Effects on Fluency and Complexity

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Fluency Index	14.066(a)	25	.563	1.934	.009
	Complexity score	2961.308(b)	25	118.452	1.066	.391
Intercept	Fluency Index	454.036	1	454.036	1560.688	.000
	Complexity score	4521.521	1	4521.521	40.684	.000
Topic Control	Fluency Index	1.812	1	1.812	**6.228**	**.014**
	Complexity score	106.637	1	106.637	.960	.329
Interest	Fluency Index	2.779	5	.556	1.910	.097
	Complexity score	1364.269	5	272.854	**2.455**	**.037**
Confidence	Fluency Index	.287	5	.057	.198	.963
	Complexity score	226.871	5	45.374	.408	.842
Interest* Confidence	Fluency Index	3.446	14	.246	.846	.618
	Complexity score	625.795	14	44.700	.402	.972
Error	Fluency Index	37.238	128	.291		
	Complexity score	14225.509	128	111.137		
Total	Fluency Index	2130.267	154			
	Complexity score	35181.040	154			
Corrected Total	Fluency Index	51.304	153			
	Complexity score	17186.817	153			

a R Squared = .274 (Adjusted R Squared = .132)
b R Squared = .172 (Adjusted R Squared = .011)

Group 3: Multivariate Analysis of Variance (MANOVA)
Collective Main Effects on Fluency and Complexity

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Fluency Index	14.654(a)	25	.586	1.786	.020
	Complexity score	2946.701(b)	25	117.868	1.223	.232
Intercept	Fluency Index	326.586	1	326.586	995.229	.000
	Complexity score	4067.062	1	4067.062	42.199	.000
Topic Control	Fluency Index	2.360	1	2.360	**7.191**	**.008**
	Complexity score	78.842	1	78.842	.818	.367
Interest	Fluency Index	1.598	5	.320	.974	.436
	Complexity score	422.759	5	84.552	.877	.498
Confidence	Fluency Index	1.287	5	.257	.784	.563
	Complexity score	1638.728	5	327.746	**3.401**	**.006**
Interest * Confidence	Fluency Index	5.449	14	.389	1.186	.293
	Complexity score	1115.262	14	79.662	.827	.639
Error	Fluency Index	42.660	130	.328		
	Complexity score	12529.233	130	96.379		
Total	Fluency Index	1718.268	156			
	Complexity score	32521.067	156			
Corrected Total	Fluency Index	57.314	155			
	Complexity score	15475.935	155			

a R Squared = .256 (Adjusted R Squared = .113)
b R Squared = .190 (Adjusted R Squared = .035)

Group 4: Multivariate Analysis of Variance (MANOVA)
Collective Main Effects on Fluency and Complexity

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Fluency Index	14.001(a)	24	.583	1.868	.016
	Complexity score	4631.867(b)	24	192.994	.820	.704
Intercept	Fluency Index	349.246	1	349.246	1118.044	.000
	Complexity score	4868.219	1	4868.219	20.696	.000
Topic Control	Fluency Index	4.980	1	4.980	**15.942**	**.000**
	Complexity score	.026	1	.026	.000	.992
Interest	Fluency Index	1.487	5	.297	.952	.451
	Complexity score	1492.968	5	298.594	1.269	.283
Confidence	Fluency Index	2.618	5	.524	1.676	.147
	Complexity score	1445.102	5	289.020	1.229	.301
Interest * Confidence	Fluency Index	1.468	13	.113	.362	.979
	Complexity score	1451.237	13	111.634	.475	.934
Error	Fluency Index	32.799	105	.312		
	Complexity score	24698.996	105	235.229		
Total	Fluency Index	1575.179	130			
	Complexity score	52118.258	130			
Corrected Total	Fluency Index	46.801	129			
	Complexity score	29330.863	129			

a R Squared = .299 (Adjusted R Squared = .139)
b R Squared = .158 (Adjusted R Squared = -.035)

Appendix N
ANOVA Statistical Results Tables for All Groups

Topic Control: Interest in a Topic
Group 1

Topic Control	Mean	Std. Deviation	N
Assigned	4.09	.776	55
Self-Selected	3.98	1.319	51
Total	4.04	1.068	106

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.323(a)	1	.323	.281	.597
Intercept	1723.908	1	1723.908	1499.981	.000
Topic Control	.323	1	.323	.281	.597
Error	119.526	104	1.149		
Total	1848.000	106			
Corrected Total	119.849	105			

a R Squared = .003 (Adjusted R Squared = -.007)

Topic Control: Interest in a Topic
Group 2

Topic Control	Mean	Std. Deviation	N
Self-Selected	4.14	1.211	77
Assigned	4.05	1.037	77
Total	4.10	1.125	154

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.318(a)	1	.318	.250	.618
Intercept	2585.461	1	2585.461	2033.891	.000
Topic Control	.318	1	.318	.250	.618
Error	193.221	152	1.271		
Total	2779.000	154			
Corrected Total	193.539	153			

a R Squared = .002 (Adjusted R Squared = -.005)

Topic Control: Interest in a Topic
Group 3

Topic Control	Mean	Std. Deviation	N
Assigned	3.68	1.276	79
Self-Selected	4.09	1.216	77
Total	3.88	1.260	156

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6.471(a)	1	6.471	4.162	.043
Intercept	2356.855	1	2356.855	1515.775	.000
Topic Control	6.471	1	6.471	**4.162**	**.043**
Error	239.452	154	1.555		
Total	2600.000	156			
Corrected Total	245.923	155			

a R Squared = .026 (Adjusted R Squared = .020)

Topic Control: Interest in a Topic
Group 4

Topic Control	Mean	Std. Deviation	N
Self-Selected	3.29	1.529	63
Assigned	3.69	1.018	67
Total	3.49	1.301	130

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5.217(a)	1	5.217	3.131	.079
Intercept	1578.417	1	1578.417	947.309	.000
Topic Control	5.217	1	5.217	3.131	.079
Error	213.275	128	1.666		
Total	1804.000	130			
Corrected Total	218.492	129			

a R Squared = .024 (Adjusted R Squared = .016)

Topic Control: Confidence in a Written Product
Group 1

Topic Control	Mean	Std. Deviation	N
Assigned	3.35	.927	55
Self-Selected	3.41	.983	51
Total	3.38	.951	106

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.116(a)	1	.116	.128	.722
Intercept	1208.267	1	1208.267	1325.675	.000
Topic Control	.116	1	.116	.128	.722
Error	94.789	104	.911		
Total	1304.000	106			
Corrected Total	94.906	105			

a R Squared = .001 (Adjusted R Squared = -.008)

Topic Control: Confidence in a Written Product
Group 2

Topic Control	Mean	Std. Deviation	N
Self-Selected	3.43	1.019	77
Assigned	3.26	1.031	77
Total	3.34	1.025	154

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.097(a)	1	1.097	1.045	.308
Intercept	1722.240	1	1722.240	1639.588	.000
Topic Control	1.097	1	1.097	1.045	.308
Error	159.662	152	1.050		
Total	1883.000	154			
Corrected Total	160.760	153			

a R Squared = .007 (Adjusted R Squared = .000)

Topic Control: Confidence in a Written Product
Group 3

Topic Control	Mean	Std. Deviation	N
Assigned	3.10	.982	79
Self-Selected	3.38	.918	77
Total	3.24	.958	156

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2.957(a)	1	2.957	3.269	.073
Intercept	1636.290	1	1636.290	1809.382	.000
Topic Control	2.957	1	2.957	3.269	.073
Error	139.268	154	.904		
Total	1777.000	156			
Corrected Total	142.224	155			

a R Squared = .021 (Adjusted R Squared = .014)

Topic Control: Confidence in a Written Product
Group 4

Topic Control	Mean	Std. Deviation	N
Self-Selected	3.17	.814	63
Assigned	3.21	1.095	67
Total	3.19	.965	130

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.038(a)	1	.038	.041	.840
Intercept	1323.115	1	1323.115	1409.514	.000
Topic Control	.038	1	.038	.041	.840
Error	120.154	128	.939		
Total	1445.000	130			
Corrected Total	120.192	129			

a R Squared = .000 (Adjusted R Squared = -.007)

Topic Control: The General Fluency Index
Group 1

Topic Control	Mean	Std. Deviation	N
Assigned	3.311	.5647	55
Self-Selected	3.721	.6049	51
Total	3.508	.6168	106

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4.431(a)	1	4.431	12.975	.000
Intercept	1308.470	1	1308.470	3831.649	.000
Topic Control	4.431	1	4.431	**12.975**	**.000**
Error	35.515	104	.341		
Total	1344.534	106			
Corrected Total	39.946	105			

a R Squared = .111 (Adjusted R Squared = .102)

Topic Control: The General Fluency Index
Group 2

Topic Control	Mean	Std. Deviation	N
Self-Selected	3.811	.5583	77
Assigned	3.537	.5704	77
Total	3.674	.5790	154

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2.886(a)	1	2.886	9.060	.003
Intercept	2078.963	1	2078.963	6526.544	.000
Topic Control	2.886	1	2.886	**9.060**	**.003**
Error	48.418	152	.319		
Total	2130.267	154			
Corrected Total	51.304	153			

a R Squared = .056 (Adjusted R Squared = .050)

Topic Control: The General Fluency Index
Group 3

Topic Control	Mean	Std. Deviation	N
Assigned	3.092	.5972	79
Self-Selected	3.439	.5713	77
Total	3.263	.6081	156

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4.683(a)	1	4.683	13.704	.000
Intercept	1662.943	1	1662.943	4865.879	.000
Topic Control	4.683	1	4.683	**13.704**	**.000**
Error	52.630	154	.342		
Total	1718.268	156			
Corrected Total	57.314	155			

a R Squared = .082 (Adjusted R Squared = .076)

Topic Control: The General Fluency Index
Group 4

Topic Control	Mean	Std. Deviation	N
Self-Selected	3.679	.4934	63
Assigned	3.194	.6037	67
Total	3.429	.6023	130

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7.650(a)	1	7.650	25.009	.000
Intercept	1533.590	1	1533.590	5013.903	.000
Topic Control	7.650	1	7.650	**25.009**	**.000**
Error	39.151	128	.306		
Total	1575.179	130			
Corrected Total	46.801	129			

a R Squared = .163 (Adjusted R Squared = .157)

Topic Control: The Total Complexity Score
Group 1

Topic Control	Mean	Std. Deviation	N
Assigned	12.620	11.0450	55
Self-Selected	15.883	15.8013	51
Total	14.190	13.5763	106

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	281.727(a)	1	281.727	1.536	.218
Intercept	21498.197	1	21498.197	117.233	.000
Topic Control	281.727	1	281.727	1.536	.218
Error	19071.550	104	183.380		
Total	40696.530	106			
Corrected Total	19353.277	105			

a R Squared = .015 (Adjusted R Squared = .005)

Topic Control: The Total Complexity Score
Group 2

Topic Control	Mean	Std. Deviation	N
Self-Selected	10.296	10.5926	77
Assigned	11.323	10.6492	77
Total	10.810	10.5987	154

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	40.585(a)	1	40.585	.360	.550
Intercept	17994.223	1	17994.223	159.517	.000
Topic Control	40.585	1	40.585	.360	.550
Error	17146.232	152	112.804		
Total	35181.040	154			
Corrected Total	17186.817	153			

a R Squared = .002 (Adjusted R Squared = -.004)

Topic Control: The Total Complexity Score
Group 3

Topic Control	Mean	Std. Deviation	N
Assigned	9.234	9.5487	79
Self-Selected	11.7041	10.3402	77
Total	10.453	9.9922	156

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	237.885(a)	1	237.885	2.404	.123
Intercept	17093.997	1	17093.997	172.757	.000
Topic Control	237.885	1	237.885	2.404	.123
Error	15238.049	154	98.948		
Total	32521.067	156			
Corrected Total	15475.935	155			

a R Squared = .015 (Adjusted R Squared = .009)

Topic Control: The Total Complexity Score
Group 4

Topic Control	Mean	Std. Deviation	N
Self-Selected	13.204	11.1261	63
Assigned	13.273	18.1140	67
Total	13.240	15.0788	130

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.156(a)	1	.156	.001	.979
Intercept	22762.154	1	22762.154	99.335	.000
Topic Control	.156	1	.156	.001	.979
Error	29330.707	128	229.146		
Total	52118.258	130			
Corrected Total	29330.863	129			

a R Squared = .000 (Adjusted R Squared = -.008)

Appendix O
Mean Interest and Confidence in Assigned Topics

Mean Interest Scores
for Each Assigned Topic by Group

Group	Life After School is Finished	Differences Between Men and Women	Relationships	Leisure
110	4.07	4.21	3.83	4.20
201	3.67	3.67	4.13	4.69
310	3.54	3.50	3.93	3.71
301	4.00	3.29	3.23	4.07
Mean	3.82	3.67	3.78	4.17

Mean Confidence Scores
for Each Assigned Topic by Group

Group	Life After School is Finished	Differences Between Men and Women	Relationships	Leisure
110	3.07	3.21	3.33	3.73
201	2.93	3.73	3.29	3.60
310	2.85	2.93	3.64	3.57
301	2.77	3.23	3.64	3.20
Mean	2.91	3.28	3.47	3.53

Appendix P
Topics Self-Selected by Participants

A Book I'm Reading
A Dream
A Friend's Problem
A Place to Live
About Me
About me and my Family
About My Friend
About my work
About the journal
Advantages of Bikes
After Running
AMD Day
Anniversary Plans
Archeology Tests
Art
B Horror Movies
Bad Class/Professor
Bad Day
Bad Job
Bad Weather/Day
Basketball
Becoming a Pilot
Beer
Biology and Work
Birthday Activities
Birthday Plans
Books
Brad Pitt Movies
Brainstorming what to write
Broken Computer
Bus Issues
Busy
Busy and Free Time
Busy Day
Busy Week
Can't Sleep
Chechnya
Christmas Vacation
Class Schedule
Classes
Cold Weather
Computer Problems
Cute Girl
Deciding My Career
Dirty Building
Don't Like Free Topics
Don't Like School
Drinking
Easter Plans
Easy Semester
Exercise and Visiting Family
Exotic Food
Favorite Films
Favorite Foods
Favorite TV Show
Finishing the Journal
Food and Hunger
Friday Plans
Friend Needs New Car
Going to Church
Good Coffee House
Grades
Grandmother Died
Groceries
Hard Luck Story
Hawaii
Hockey
Hungry
Hunting
I Don't Know
Ice Cream
Injured
Japanese Tests
Job Stress
Last Weekend
Late Explanation
Law School
Literature
Love
Many Tests
Math
MCAT Exam
Memory from Childhood
Mom is Visiting
Music
My Birthday
My courses
My Day
My Dogs
My Family
My Friend
My Future
My Morning
My Platform when I run for Office
My Sporty Car
My Teacher's Story
My Week
Need More Sleep
Need New Appliances
New Apartment
New Art Student
New Car
New Girlfriend
New Job
New Work-Out Plan
News
No Time!
Parents are Moving
Party Plans
Pet Issues
Picnic
Plans for Today
Playing Music
Politics
Poor
Problem with "free writing"
Problems
Rambling
Reading
Ready for Summer
Recent Film
Recent Trip
Rock Music
Roommate Stress
School
School and Sick
School and Work
School Stress
Schoolwork

Sick Daughter
Sister's Wedding
Sitting in the Sun
SNES Games
Sororities
Spoiled Food
Sports
Spring Break
Spring Break Plans
Summer
Surprise Party
Tests
The Cat
The City
The Film "Manner"
Tired
Tired of German
Tired of School
Too Much Work
Travel
Travel in Summer
Trip to Chicago
Trip to Georgia
Trip to Germany
Trip to Germany
Trip to Switzerland
U.T. Baseball
U.T. Basketball Game
Upcoming Events
Valentines Plans
Valentine's Day
Visiting Dad and Dog
Volleyball
Watching German Movies
Weather
Weekend Plans
What I did Yesterday
Where I've lived
Who/What I like
Why I hate School
Wings
Working Abroad
Writing in German

Appendix Q
Frequency, Mean Interest and Mean Confidence in Global Categories From Self-selected Topics

By Frequency:

Number	Category	Mean Interest	Mean Confidence
45	Recent Personal Event	4.11	3.31
41	Plans	3.78	3.59
34	Interest	4.26	3.32
30	Rambling	3.30	3.00
28	Problem	3.61	3.43
25	School	4.20	3.52
15	Introduction	4.33	3.13
10	Weather/Day Report	4.10	3.20
9	Commentary	3.00	3.00
8	Sports	4.13	3.63
6	Food	3.33	3.33
6	Misc	4.17	3.83
5	Aspirations	4.20	3.00
3	Living	4.00	4.00
3	Work	3.33	3.33

By Mean Interest:

Mean Interest	Number	Category	Mean Confidence
4.33	15	Introduction	3.13
4.26	34	Personal Interest	3.32
4.20	5	Aspirations	3.00
4.20	25	School	3.52
4.17	6	Misc	3.83
4.13	8	Sports	3.63
4.11	45	Recent Personal Event	3.31
4.10	10	Weather/Day Report	3.20
4.00	3	Living	4.00
3.78	41	Plans	3.59
3.61	28	Problem	3.43
3.33	3	Work	3.33
3.33	6	Food	3.33
3.30	30	Rambling	3.00
3.00	9	Commentary	3.00

By Mean Confidence:

Mean Confidence	Number	Category	Mean Interest
4.00	3	Living	4.00
3.83	6	Misc	4.17
3.63	8	Sports	4.13
3.59	41	Plans	3.78
3.52	25	School	4.20
3.43	28	Problem	3.61
3.33	6	Food	3.33
3.33	3	Work	3.33
3.32	34	Personal Interest	4.26
3.31	45	Recent Personal Event	4.11
3.20	10	Weather/Day Report	4.10
3.13	15	Introduction	4.33
3.00	30	Rambling	3.30
3.00	9	Commentary	3.00
3.00	5	Aspirations	4.20

Glossary of Terms[1]

Affect	Emotional variables such as attitude, mood, motivation, or personality that can influence learning and production of a language or language form.
Affective Filter	First proposed by Krashen (1985) as a type of guard through which all language passes. Negative attitudes or lack of motivation to learn, for example, might inhibit how much of the target language a learner effectively 'takes in' and/or produces.
ANOVA	**AN**alysis **O**f **VA**riance – a statistical measure used to determine how one variable influences another.
Authentic Use	The use of the target language in a context that is "true to life" or would occur in a real-life setting.
Canonical Word Order	In German, canonical word order occurs with subject in the first position of the sentence, followed by the verb, then all other elements, including direct and indirect objects, prepositional phrases, and so forth.
Clause Boundary	In this study, clauses are bound to conjugated verbs with actual or implied subjects or infinitive verbs plus the infinitive marker *zu* (meaning "to").
Coherence	The degree to which all arguments, sentences, or clauses within a composition (piece of written work) relate to the overarching topic of the composition.
Cohesion	The degree to which one argument, sentence, or clause within a composition (piece of written work) relates to the other arguments (etc.) within the composition.
Confidence in a Written Product (Confidence)	A *post hoc* participant-indicated overall judgment about the quality of completed composition.

[1] I wish to recognize Longman (1992) as a reference for parts of this glossary, though no exact definition wording was used directly from the work.

Confounding Variable	A variable within a research study which can adversely influence the outcome of the study either in tandem with other variables or alone.
Content-based (focused) Feedback	Responses on the part of a teacher or researcher to the participants within the study which address only the content of the writing, not the mechanics.
Counterbalanced	When two or more treatments are presented to more than one sample of participants, the order of the treatments is reversed for one of more of the groups.
Dialogue Journal	A journal or log where a reader (often the teacher) responds to what the participant writes either about the language being learned or in the language about other topics.
Ellipsis	Deletion of elements in subsequent clauses that are mentioned in previous clauses.
Fluency	The total number of words, utterances,
Form/Grammar-based (focused) feedback	Responses on the part of a teacher or researcher to the participants within the study which address the mechanics of the writing, not the content.
General Fluency Index	The ratio of total different words occurring in an entry to the total words in the entry. This was then mathematically adjusted to account for different lengths of compositions.
Goal-Orientation (Orientation)	The stance that a learner takes as the objective for learning; there are traditionally two motivational orientations: mastery (where the learner desires complete and successful learning of the material), and performance (where the learner desires to appear competent either for peers, teachers, or administrators). This study considers Elliot & Church's additional orientation, 'avoidance.'
Inversion	Occurs in German when an element other than the subject occupies the initial position of the sentence (including a clause or phrase). The verb then follows this initial element and the subject follows the verb.
L1	Abbreviation for a participant's first or natively learned language. Used synonymously in this study with NL.

L2	Abbreviation for any language other than a participant's first or natively learned language. A language currently being learned Used synonymously in this study with TL.
Likert Scale	A numeric scale on which participants indicate degrees of agreement, value, belief, or attitude about a particular phenomenon.
MANOVA	**M**ulti-variate **AN**alysis **O**f **VA**riance. Similar to the ANOVA: a statistical measure used to determine how one variable influences multiple other variables.
Meaningful Use/ Meaningful Learning	Practice of a language function which becomes integrated into the existing knowledge of a learner.
NL	Abbreviation for a participant's first or natively learned language. Used synonymously in this study with L1.
Schema	Background or prior knowledge that a learner brings to bear on the performance of a task so as to perform it more efficiently or completely.
Self-Efficacy	The degree of belief that a learner has about his own ability to learn or to perform a given task.
Subordinate Word Order	In German, subordinate word order is identified by the placement of the finite (conjugated) verb in clause/sentence-final position.
Think-aloud Protocol	A procedure where participants indicate their thoughts, value judgments, or opinions about language tasks either concurrent with data collection, or after treatments have been administered.
TL	Abbreviation for a language currently being learned Used synonymously in this study with L2.
Token	Associated with *type-token* ratio. "Type" is a category of words, and "tokens" are specific words within each type.

Total Complexity Score	The combination of the total lexical score (the combined score of all complex tokens divided by the total number of words in a given composition) and the syntactic complexity score (scores assigned to clauses based on the word order or each clause).
Transfer (of skills and language)	The positive (often called facilitative) or negative (often called interference) influence that an existing language or strategy exercises over a new language or task.
Verbal Complement (Complement)	Complements are *completion* elements. A 'verbal' complement is that part of the sentence to which the verb refers (such as objects or prepositional phrases expressing time, manner, or place).

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Vita

Joshua Douglas Bonzo was born in Ogden, Utah on November 7, 1972, and moved with his parents, Douglas and Lorraine Bonzo, to Cedar City, Utah seven days later. After graduating from Cedar City High School in 1991, Joshua enrolled in Southern Utah University, also in Cedar City. He interrupted his studies at SUU after his first semester, however, to serve for two years as a missionary for the Church of Jesus Christ of Latter-day Saints in the Germany, Munich Mission. Upon returning to the United States in 1994, he resumed his studies at SUU, and graduated in 1997, having earned the degree of Bachelor or Arts in German with a minor in French, having also studied Russian, Latin, Spanish, and Hebrew. After completion of his degree, Joshua was retained by the Southern Utah University for one year as an adjunct faculty member, where he taught an extra-curricular conversation and vocabulary class for the German department and German 101.

In 1998, Joshua commenced his graduate education at Brigham Young University in Provo, Utah, pursuing a Master of Arts degree in Language Acquisition, German Emphasis. While studying at BYU, he concurrently worked as a graduate instructor of first and second year German. In the summer of 2000, Joshua defended his M.A. Thesis, titled "Negative Language Transfer: The Effect of a Translation Task on the Production of Three German Structures," and was awarded the degree of Master of Arts along with the award for the outstanding Thesis within the department for the 1999-2000 academic year. Following his work at BYU, Joshua moved to Austin, Texas, where he began work toward the degree of Doctor of Philosophy. While at UT, he worked concurrently as a graduate instructor of first and second year German, having also been selected by the Department of Germanic Studies to instruct an upper-division course as well. He has published two articles while studying at UT, "Translation as an L2-Production Tool? Mapping Language Learners' Susceptibility and Resistance to Transfer Using an L1-Driven Task" in the UT-published *Texas Papers in Foreign Language*, and "Case Studies

of Language Learners as a Tool for Helping Teachers Understand the Experience of Language Learning" in the *Hong Kong Journal of Applied Linguistics.*

Joshua married Amber Lyon in December, 1995. They are the parents of two girls, Anna Elizabeth (5) and Kaitlyn Lorraine (2).

Permanent Address: P.O. Box 2315 Cedar City, Utah 84721

This dissertation was typed by the author.